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ABSTRACT

This publication discusses world problems related to poverty and possible ways to escape those problems. Sections include: (1) "Introduction"; (2) "And the Poor Get Poorer" (reporting data on income distribution in many countries); (3) "The Global Poverty Trap" (describing various hindrances to improving conditions at the local, national, and global levels); (4) "Poverty and the Environment" (including cases of ecological deterioration in many poor countries); (5) "Reversing the Downward Spiral" (providing a success story for each of the poverty traps). Lists 128 references. (YP)

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# Poverty and the Environment: Reversing the Downward Spiral

Alan B. Durning

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November 1989

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## Introduction

Until the lions have their historians," declares an African proverb, "tales of hunting will always glorify the hunter."[1] Likewise, the historians of the world's fortunate class—those billion-odd people who inhabit industrial lands—have already labeled the twentieth century an era of economic miracles.

The history of the wealthy is impressive. Since 1900, the value of goods and services produced each year worldwide has grown twentyfold, the use of energy thirtyfold, the products of industry fiftyfold, and the average distance traveled by the well-to-do perhaps a thousandfold. As the century enters its final decade, commoners of the world's affluent nations live like the royalty of yesteryear, and elites literally live like gods—crossing continents on the winds and bending the forces of nature to their will.[2]

Yet the poor would tell a different tale. The disparities in living standards that separate them from the rich are nearly beyond comprehension. The world has 157 billionaires, and perhaps 2 million millionaires, but 100 million people around the globe are homeless, living on sidewalks, in garbage dumps, and under bridges. Americans spend $5 billion each year on special diets to lower their calorie consumption, while the world's poorest 400 million people are so undernourished they are likely to suffer stunted growth, mental retardation, or death. As water from a single spring in France is bottled and shipped to the prosperous around the world, 1.9 billion people drink and bathe in water contaminated with deadly parasites and pathogens, and more than half of humanity lacks sanitary toilets.[3]

I wish to thank Robert Chambers and Michael Lipton for their insightful comments on a preliminary draft of this paper, and to express my deep gratitude to Holly Brough for her able and dedicated assistance in gathering, organizing, and analyzing vast quantities of often uncooperative data.

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The world's approximately 50 billion books are irrelevant for the 880 million adults who cannot read or write their own names. In 1988, the world's nation states devoted $1 trillion—$200 for each person on the planet—to the means of warfare, but failed to scrape together the $5 per child it would have cost to eradicate the simple diseases that killed 14 million that year.[4]

The histories of rich and poor have diverged particularly sharply in the eighties. For industrial nations, the decade has been a time of resurgence and recovery after the economic turmoil of the seventies. For the poor, particularly in Africa and Latin America, the eighties have been an unmitigated disaster, a time of falling earnings and rising debt, of falling food supplies and rising death rates.

Destitution in the modern world is perpetuated by a set of mutually reinforcing factors at the local, national, and international levels that form a global poverty trap. Locally, poor people's lack of productive assets, their physical weakness, susceptibility to illness, and powerlessness combine with rapid population growth to keep them in straitened circumstances. Nationally, government policies in many sectors favor the urban fortunate over the rural masses. And at the international level, interlocking patterns of debt, trade, and capital flight during the eighties have made the rich richer and the poor poorer.

In recent times, moreover, poverty has become an increasingly environmental phenomenon. The poor not only suffer disproportionately from environmental damage caused by the better off, they have become a major cause of ecological decline themselves. Pushed to marginal lands by population growth and inequitable development patterns, they raze plots in the rain forest, plow steep slopes, and overgraze fragile rangeland. Economic deprivation and environmental degradation have thus come to reinforce one another to form a maelstrom—a downward spiral that threatens to pull ever more into its grasp.

The entire planet is at risk as this whirlpool expands, growing

**"Economic deprivation and environmental degradation reinforce one another to form a maelstrom—a downward spiral."**

stronger as it feeds on itself. Yet, there are great prospects for breaking up the downward spiral. Poor people have formed hundreds of thousands of grassroots organizations to help themselves gain what official development programs have failed to provide. And these organizations, in some cases working with enlightened governments and international agencies, have found scores of innovative ways to pry open the poverty trap. But ultimate success depends on turning these hopeful beginnings into a full-fledged mobilization to end poverty. That, in turn, rests with the world's governments and the affluent.



## And the Poor Get Poorer

In 1978, Robert McNamara, then president of the World Bank, gave what stands as the classic description of absolute poverty: "A condition of life so limited by malnutrition, illiteracy, disease, squalid surroundings, high infant mortality, and low life expectancy as to be beneath any reasonable definition of human decency."[5] As McNamara's words suggest, poverty is far more than an economic condition.

Although traditionally measured in terms of income, poverty's true horror, as revealed by what poor people strive most persistently to escape, extends into all aspects of individual life: susceptibility to disease, inaccess to most types of services and information, lack of control over resources, subordination to higher social and economic classes, extreme vulnerability to sudden misfortunes, and utter insecurity in the face of changing circumstances. Flowing from these physical dimensions, poverty's psychological toll is equally severe—the erosion of human dignity and self-respect.[6]

Described in numbers, poverty seems horrible enough, but the depth of its cruelty can only be fully appreciated through the words of the poor themselves. A young woman from the highlands of Guatemala describes the misery and powerlessness of life, and death, on the coffee plantations where her family and thousands of other Indians worked as migrants:

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> Two of my brothers died in the plantation. The first, he was the eldest, was called Felipe. . . . They'd sprayed the coffee with pesticide by plane while we were working, as they usually did, and my brother couldn't stand the fumes and died. . . . The second one . . . his name was Nicolás . . . died when I was eight. . . . He was two then. When my little brother started crying, crying, crying, my mother didn't know what to do. . . . He lasted fifteen days. . . .
>
> The little boy died early in the morning. We didn't know what to do. Our two neighbors were anxious to help my mother but they didn't know what to do either—not how to bury him or anything. Then the overseer told my mother she could bury my brother in the plantation but she had to pay a tax to keep him buried there. My mother said, "I have no money at all." He told her: "Yes, and you already owe a lot of money for medicine and other things, so take his body and leave." . . . It was impossible to take his body back to the highlands. . . . So my mother decided that, even if she had to work for a month without earning, she would pay the tax to the landowner, or the overseer, to bury my brother in the plantation. . . . One of the men brought a little box, a bit like a suitcase. We put my brother in it and took him to be buried. . . . That night the overseer told us: "Leave here tomorrow."[7]

They were fired for missing work to bury Nicolás. For the Indians of Guatemala, like the rest of the poor, life is a grueling trial. Days before his own death, a farm laborer in Bangladesh summed it up this way: "Between the mortar and the pestle, the chilli cannot last. We poor are like chillies—each year we are ground down, and soon there will be nothing left."[8]

Unfortunately, even the most basic poverty indicator—income—is little monitored. It is possible to know precisely how much money is in circulation in Haiti, how much steel is produced in Malaysia, and how many automobiles there are in the Congo. But the numbers of people living in the wretched misery of poverty is a matter largely left to conjecture: little information is gathered and what exists is often inconsistent, outdated, or unreliable.

**"Poverty's cruelty can only be fully appreciated through the words of the poor themselves."**

To answer the question of how many people live in poverty, economists define a poverty line by calculating the income in cash or kind a family requires to meet its basic needs either solely for food, or for food, clothing, and shelter. Ideally, governments carry out household surveys or censuses to determine what percentage of their people have incomes below that threshold. Unfortunately, the procedure, already somewhat arbitrary because it measures poverty by a single indicator, is further marred by the variety of poverty lines employed and the rarity of true house-to-house monitoring. Absolute poverty, described so cogently by Robert McNamara, has many definitions. In this paper, it signifies the lack of sufficient income in cash or kind to meet the most basic biological needs for food, clothing, and shelter. The absolute poverty income threshold varies widely between $50 and $500 per year, depending on such things as prices, access to subsistence resources, and availability of public services.



In the early eighties, World Bank and U.N. Food and Agriculture Organization (FAO) estimates of the numbers of people living in absolute poverty ranged between 700 million and 1 billion. In 1989, most indicators suggest that poverty has increased dramatically in sub-Saharan Africa and Latin America, as well as parts of Asia, swamping impressive reductions in China and India. Absent direct monitoring, though, tracking the course of poverty requires inference from trends in average incomes, wages, prices, unemployment rates, and health indicators.[9]

Perhaps the best way to analyze income per person or average income was developed by Robert Summers and Alan Heston of the University of Pennsylvania. They used a database comprising two decades of reports by the United Nations, World Bank, and Organization for Economic Cooperation and Development to compile per capita gross domestic product figures for 130 nations. Their key innovation was to make systematic adjustments to reflect the widely varying purchasing power for goods and services among the countries in their survey, which gives a much more realistic picture of income levels. Thus, in this paper, per capita or average income is based on their data, denominated in constant 1980 U.S. dollars.[10]

Based on their data, average income per person worldwide has doubled to $3,300 since 1950, but the fruits of global economic growth have almost all gone to the fortunate. Grouping the world's nations into four classes based on their 1985 per capita income brings the disparities into sharp focus. (See Figure 1.)[11] Wealthy nations, including those in Europe and North America, almost tripled their per capita incomes over the last 40 years. Middle-income countries, such as Brazil, Mexico, and Turkey, more than doubled theirs before beginning a period of stagnation in 1980. Poor nations, including China, Egypt, and the Philippines, experienced some rise, but the per person income of the poorest countries, including much of the Indian subcontinent and Africa, has remained effectively level since mid-century.

The world's economic classes, furthermore, are not of equal size; rather, affluence is the privilege of a small minority. Some 60 percent of the world's people live in countries where annual income per person is below $2,000. Only 5 percent of the world's people live in the top stratum, most of them in the United States. (See Figure 2.)[12]

Wide as the gap between the world's rich and poor appears when measured in average income, the real situation is worse. Averages disguise the gross disparities in income distribution that characterize the majority of countries. Between 60 and 70 percent of the people in most countries earn less than their nation's average income. Almost nowhere does the poorest fifth of households collect even 10 percent of national income, while the richest fifth commonly receives half. (See Table 1.)[13]

Among the world's most populous nations, China, the Soviet Union, and Japan all have relatively equitable income distributions, with the richest fifth of households in the nation receiving between 3 and 4 times as much per year as the poorest fifth. Indonesia, Egypt, and India fall in the middle of the range, with the rich earning 8–10 times as much as the poor. Mexico is worse, with a factor of 18 separating top and bottom, while in Brazil members of the richest fifth earn 28 times as much as members of the poorest fifth.

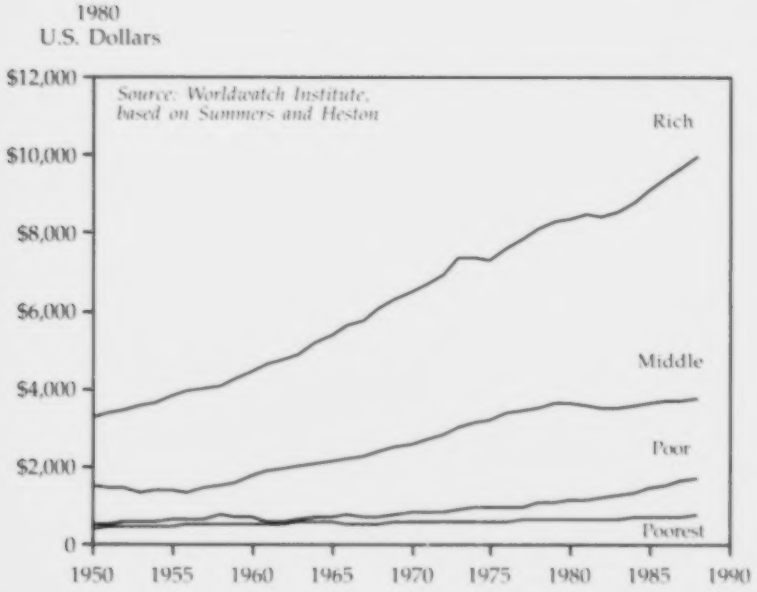


**Figure 1: Adjusted Income per Person, Four Economic Classes of Nations, 1950–88**

The world as a whole is probably less equitable than any nation. The fifth of humanity living in the richest countries have average incomes 15 times higher than the fifth living in the poorest. Were sufficient data available to group the world's people by their true incomes rather than their nation's average incomes, the richest fifth might be found to earn 30 or 40 times what the poorest do.

Data on income distribution and average income can be combined to

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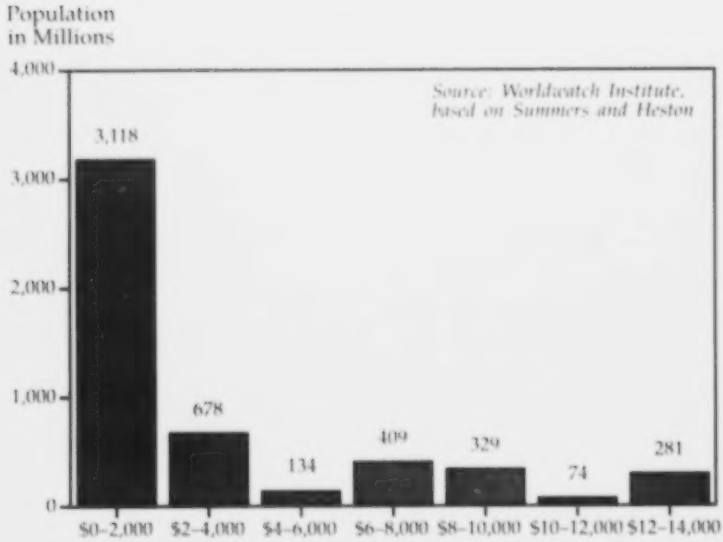


**Figure 2: World's Population, Grouped by Adjusted per Capita Income in 1980 U.S. Dollars, 1989**

help reveal the extent of poverty. Table 2 ranks countries by the average income of the poorest 40 percent of their citizens. The poor may be fairly well off even when average income is low, or suffer greatly where average income is high. In 1985, for example, Egypt's per capita income was about half of Peru's, but because Egypt is more equitable, poor Egyptians earned one-third more than poor Peruvians. Likewise, Brazil's average income was twice Sri Lanka's, but the Sri Lankan poor earned more than the Brazilian poor.[14]

In terms of economic security, what different classes own is as important as what they earn. Although reliable information is

**Table 1: Approximate Income Distribution of Most Populous Nations, and of World, Most Recent Available Year[1]**

| Country | Year | Share of National Income: Poorest 20 Percent of Households | Share of National Income: Richest 20 Percent of Households | Equity Ratio: Ratio of Richest Share to Poorest Share |
|---|---|---|---|---|
| | | (percent) | | |
| China (cities) | 1984 | 12 | 31 | 3 |
| Soviet Union | 1980 | 9 | 36 | 4 |
| Japan | 1979 | 9 | 37 | 4 |
| West Germany | 1978 | 8 | 40 | 5 |
| United Kingdom | 1982 | 7 | 40 | 6 |
| Bangladesh | 1982 | 7 | 45 | 7 |
| Italy | 1977 | 6 | 44 | 7 |
| Indonesia | 1976 | 7 | 49 | 8 |
| Egypt | 1974 | 6 | 48 | 8 |
| India | 1976 | 5 | 50 | 10 |
| Pakistan | 1985 | — | 47 | — |
| Philippines | 1985 | 5 | 53 | 10 |
| Thailand | 1976 | 5 | 57 | 11 |
| United States | 1986 | 4 | 46 | 12 |
| France | 1975 | 4 | 50 | 13 |
| Turkey | 1973 | 4 | 57 | 16 |
| Mexico | 1977 | 3 | 54 | 18 |
| Brazil | 1982 | 2 | 64 | 28 |
| WORLD[2] | 1985 | 4 | 58 | 15 |

[1] Data for Vietnam, Nigeria, and Iran are unavailable. Equity ratios are based on unrounded income share figures and therefore may appear inconsistent with income shares listed.
[2] Estimated from average national incomes; true world income distribution is much less equitable.

**Source:** Worldwatch Institute.

**Table 2: Adjusted Income per Capita, and Income per Capita of Poorest 40 Percent of Population, Selected Countries, 1985**

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| Country | Income per Capita | Income per Capita of Poorest 40 Percent |
|---|---|---|
| | (1980 U.S. dollars) | |
| Malawi | 390 | 90 |
| Kenya | 600 | 130 |
| Madagascar | 500 | 170 |
| Côte d'Ivoire | 920 | 200 |
| India | 750 | 300 |
| Peru | 2,110 | 370 |
| Philippines | 1,360 | 480 |
| Egypt | 1,190 | 490 |
| Brazil | 3,280 | 570 |
| Sri Lanka | 1,540 | 610 |
| Thailand | 1,900 | 720 |
| Costa Rica | 2,650 | 800 |
| Malaysia | 3,420 | 960 |
| Mexico | 3,990 | 990 |
| South Korea | 3,060 | 1,290 |
| China (cities) | 2,440 | 1,710 |

**Source:** Worldwatch Institute.

exceedingly scarce, the disparity in distribution of wealth appears to be wider than the disparity in distribution of income. The situation in India is probably representative of developing countries generally: there, the richest tenth of households receive income worth 25 times as much as the poorest tenth of households, but own assets worth 250 times as much.[15]

**"Many countries are no longer so much developing as disintegrating."**

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For the poor of Africa, Latin America, and parts of Asia, the eighties have been a time of cruel reversals, a period when the global economy seemed to conspire against them. On top of the runaway population growth and accelerating environmental decline that were already dragging down living standards across the Third World, prices for poor nations' exports have plummeted, and international debt has siphoned a growing share of their income into the hands of foreign financiers. The poor, in short, have earned less, and consequently eaten less, but they have paid ever more.

Since 1950, the gap between rich and poor nations has grown mostly because the rich got richer. But, since 1980, in many developing countries the poor have been getting poorer too. More than 40 Third World nations will probably finish the decade poorer, in per capita terms, than they started it. The 14 most devastated countries—including Zambia, Bolivia, and Nigeria—have seen per capita income plummet as drastically since their troubles began as did the United States during the Great Depression. Indeed, the term developing nation has become a travesty: many countries are no longer so much developing as disintegrating.[16]

The human impact of this decade's economic backslide in Africa, Latin America, and parts of Asia has been ruinous. Malnutrition is documented to be on the rise in Burma, Burundi, the Gambia, Guinea-Bissau, Jamaica, Niger, Nigeria, Paraguay, the Philippines, Nicaragua, El Salvador, and Peru, and is undoubtedly increasing elsewhere as well, particularly among societies' least fortunate members. The World Bank reports that from 1979 to 1983, life expectancy fell in nine African countries, and more than 100 million Africans are thought to lack sufficient food to sustain themselves.[17]

Poverty's most savage toll is measured in the lives of children. In Zambia, twice as many children died from malnutrition in 1984 as in 1980. The infant mortality rate in Brazil rose in 1983 and 1984 for the first time in decades—and rose most steeply in the poorest regions. Similar trends are afoot in much of the Third World, leading UNICEF, the United Nations Children's Fund, to conclude in its 1989

annual report that "at least half a million young children have died in the last 12 months as a result of the slowing down or the reversal of progress in the developing world."[18]



UNICEF expresses the agony and desperation that the eighties have brought to the world's most deprived children:

> Three years ago, former Tanzanian President Julius Nyerere asked the question, "Must we starve our children to pay our debts?" That question has now been answered in practice. And the answer has been "Yes." In those three years, hundreds of thousands of the developing world's children have given their lives to pay their countries' debts, and many millions more are still paying the interest with their malnourished minds and bodies.[19]

The economic turmoil of the eighties has wreaked havoc south of the Sahara. Income per capita peaked in 1974, stumbled along until 1980, and then plunged, dropping 25 percent by 1988. (See Figure 3.)[20] Nigeria, Zaire, and Zambia, dependent on exports of mineral resources, and war-torn Angola, Ethiopia, Mozambique, and Sudan have seen their economies unravel more rapidly still. North African and Middle Eastern nations suffered less than most in the early eighties, but with the drop of oil prices in mid-decade, unemployment spread and poverty rose again.[21]

In Latin America, per capita income stood at almost $3,400 in 1980. Sadly, skewed income distribution meant that destitution continued to be the lot of a large share of the population. The eighties have darkened the outlook across the region, but have been devastating for the poor. (See Figure 3.) As Inter-American Development Bank President Enrique Iglesias said in September 1988, "The per capita income of the average Latin American is 9 percent lower today than it was in 1980. This is average. In some countries the standard of living has slipped back to what it was 20 years ago. It does not take much imagination to realize that behind this statistic are plummeting real wage levels, soaring unemployment, . . . increased levels of marginality, and acute poverty—in short, an erosion of every mea-

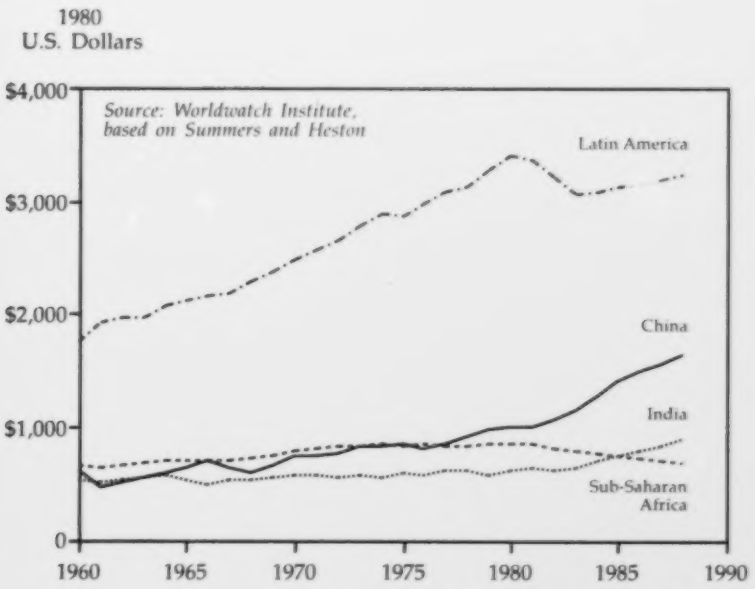


**Figure 3: Adjusted per Capita Income in China, India, Latin America, and Sub-Saharan Africa, 1960–88**

sure of social well-being." El Salvador, Nicaragua, and Peru, all torn by war, have gone into economic tailspins. Peruvian children are malnourished to the point that one in three has stunted growth, according to the government's National Investigation of Nutrition and Health. In El Salvador, staples like beans are now called "rich people's food" and health workers report that infant mortality is surging.[22]

Asian economies have been sharply divided during the turbulence of the eighties. In China, average income has risen by more than 60

percent since the decade began. (See Figure 3.) India, Indonesia, Pakistan, and Thailand have also raised per capita income appreciably during the eighties, in some cases at a faster rate than in earlier decades. Bangladesh, Burma, and Vietnam, by contrast, have stagnated, and the Philippines has experienced a sharp decline.[23]

Asian countries that have done well during the eighties—coincidentally, among the few countries for which fairly reliable poverty estimates exist—have also made strides in alleviating poverty. The extent of absolute poverty in China has been cut dramatically during the rapid economic growth of the eighties. In 1980, according to one estimate, 150 million Chinese lived in poverty; by 1988 best estimates put the number at 70 million, even though the country's population had grown by 69 million over this period. Indonesia, meanwhile, has reduced the portion of its population in poverty by between one-fourth and one-half since 1970, according to different estimates. Thailand has reportedly made a 50-percent reduction since 1960, and, though still controversial, indications are that the poverty rates in India and Pakistan have declined by several percentage points in the eighties.[24]

To distinguish the effects of economic hardship on the poorer members of Third World societies is a difficult task, yet existing evidence shows that the less fortunate have suffered disproportionately from the overall decline that has afflicted many developing regions. Wage trends exemplify the plight of the poor. An analysis carried out for the International Labor Organization reveals that real urban wages have fallen in most of sub-Saharan Africa over the past decade, and have declined the most for unskilled workers—the urban poor. The U.N. Research Institute for Social Development shows similar trends in Latin America. Meanwhile, FAO studies on Bangladesh, Brazil, Côte d'Ivoire, Ghana, southern India, Kenya, Malawi, Mexico, and the Philippines show that real wages for agricultural labor, a critical component of poor households' livelihoods, have been declining. In Zaire, the real value of the minimum wage in 1982 was about 3 percent of what it was in 1970. Meanwhile, prices, particularly for food, have risen in real terms almost everywhere, taking a heavy toll on

**"In Zaire, the real value of the minimum wage in 1982 was about 3 percent of what it was in 1970."**

urban and rural wage earners alike. And unemployment, underemployment, and low-paid self-employment have all increased markedly in wide regions of the Third World.[25]



In the few countries where the eighties' effect on the equity of income distribution has been documented, the results confirm that the poor have borne the brunt of the economic hardships. In Africa, studies on Nigeria, Madagascar, and Malawi suggest that the gap between rich and poor has widened during the period of overall economic decline. Likewise, in Bangladesh, Sri Lanka, and Pakistan equity of income distribution has deteriorated since the early seventies, reversing earlier improvements. Latin American income distribution, already the worst in the world, also appears to have deteriorated. The FAO reports that in rural areas of Brazil, the portion of national income going to the poorest tenth of the population declined by 14 percent in the early eighties, while the portion going to the wealthiest tenth increased by a third. Likewise, between 1981 and 1983, Brazil's average income fell by 14 percent, but the average income of the poor fell by up to twice that much. Across Latin America, the rich have squirreled away their fortunes in foreign banks, while the poor, trapped between rising food prices and falling wages, have been pushed to the very margins of survival.[26]

Given the scarcity of consistent data that directly measure poverty, the global poverty rate cannot be determined precisely. Yet estimates, no matter how rough, help to indicate the scale of the problem and the directions of change. Some sense can be gathered of the poverty rate in each Third World country by examining a wide variety of social and economic indicators, including the few recent surveys of household income, from dozens of published and unpublished sources, and from the internal documents of multilateral institutions. While the margins of error are wide for each country, totaling these individual assessments on a regional basis balances out inaccuracies, providing the best sketch of the extent of absolute poverty possible with current data. (See Table 3.)[27]

Rising poverty rates in Africa, Latin America, and parts of Asia

**Table 3: People Estimated to be Living in Absolute Poverty, 1989**

| Region | Number of People[1] | Share of Total Population |
|---|---|---|
| | (millions) | (percent) |
| Asia | 675 | 25 |
| Sub-Saharan Africa | 325 | 62 |
| Latin America | 150 | 35 |
| N. Africa & Middle East | 75 | 28 |
| TOTAL | 1,225 | 23 |

[1]Estimates are best thought of as mid-points of ranges that extend 10 percent above and 10 percent below listed figures.

**Source:** Worldwatch Institute.

appear to have swamped the poverty reductions in India and China. The result has been that in 1989 approximately 1.2 billion people lived in absolute poverty. In large part because of population growth, that total is much larger than ever before. Perhaps more significant is what this means for the global poverty rate. World Bank figures suggest that rate stood at 22.3 percent in 1980, after declining steadily but gradually since mid-century. The new poverty estimate of 1.2 billion people translates to a poverty rate of 23.4 percent. During the eighties, in other words, the global poverty rate has not only stopped falling, but has risen.[28]

These 1.2 billion people are not a homogeneous group. Nonetheless, a few generalizations help answer the question, Who are the poor? Despite rapid urbanization and growing urban poverty in much of the world, four-fifths of those in absolute poverty still live in rural areas. Only in Latin America does a large share of the poor—nearly one-half—live in cities. Almost all of the poor, in other words, live in, and are culturally shaped by, the world's two million villages—the tightly knit social and economic institutions that have been at the center of human life since the dawn of agriculture.[29]

**"During the eighties, the global poverty rate has not only stopped falling, but has risen."**

Even among the absolute poor, degrees of poverty can be distinguished. Michael Lipton of the International Food Policy Research Institute in Washington, D.C., has demonstrated that those at the very bottom of the economic ladder form a distinct sub-class. Defined as those who spend 80 percent of their income on food but still lack sufficient calories to meet their metabolic needs, this undernourished class accounts for perhaps one-third of the absolute poor, or 400 million people. All of the poor eat boring, monotonous, and unappetizing diets of cereals, roots, and legumes day after day, and all may be hungry periodically, but only the undernourished poorest run a high risk of perishing, or suffering stunted growth and mental retardation for lack of food.[30]



All levels of the world's poor are overwhelmingly illiterate, and therefore lack access to information and ideas that could help them escape poverty. Indeed, social scientists studying poverty through statistical analysis commonly find educational level to be the variable that correlates most closely to standard of living. Even among landless laborers, where literacy would seem to matter little, those who can read tend to earn more than those who cannot.[31]

The poor are often distinct in race, tribe, or religion from dominant wealthy groups. In Africa, with its hundreds of different cultural groups, economic strata are often drawn along tribal lines. Indian poverty is concentrated among tribal peoples and lower castes. The hill tribes of Southeast Asia and the Philippines fall at the bottom of the economic ladder, while Latin American Indians are the poorest of that region, particularly in Guatemala, Peru, and Bolivia, where they form a majority of the population.

The poor are slightly more likely to be female than male, particularly in urban areas, leading some analysts to speak of a global "feminization of poverty." Though the true extent of female poverty remains uncertain, there is no question that life is harsher for poor women than for poor men. Women's burdens multiply endlessly. They are paid less than men—in Egypt, half as much for farm labor. But they work more—one to three additional hours each day, according to

studies of villages in four countries. They are less well educated—female literacy trails male literacy by 38 percentage points on average in the world's worst off countries—but bear greater responsibility for the health of children. They are expected to give birth to, raise, and feed numerous (preferably male) offspring, and consequently grow weak and ailing as their bodies are exhausted by the cycle of repeated pregnancy and childbirth. They are often abused and beaten at home, but have few legal rights and fewer property rights. They cannot leave their husbands unless they are willing to lose their social standing, economic security, and their children as well. For poor women, as one Brazilian woman says, "The only holiday . . . is when you are asleep."[32]



Numerically, the group most plagued by poverty is children. As income declines, family size increases. Lipton reports that whereas 15–30 percent of developing countries' families overall have eight or more members, 55–80 percent of poor families are that large. Consequently, perhaps two-thirds of the world's absolute poor are under the age of 15, and the prospects for these young people are even worse than for their parents. Not surprisingly, at lower incomes, infant death rates turn sharply upward. Wracked by disease, lacking sufficient nourishment and clean water, perhaps one-third of these youngsters die before their fifth birthday. Many of those who survive are physically stunted and mentally impaired as a result of chronic hunger during the critical age of 6 months to 2 years, foreclosing their already slim chances of escaping poverty.[33]

The work of the poor is concentrated at the fringes of the global economy. Most are landless agricultural laborers, sharecroppers, marginal farmers, or, if they live in cities, unskilled laborers in the underground economy. What work they can find is usually piecemeal, unstable, and insecure, not to mention backbreaking and tedious, yet they work hard day in and day out. As Robert Chambers of the Institute for Development Studies in Brighton, England, puts it, "People so close to the edge cannot afford laziness or stupidity. They have to work, and work hard, whenever and however they can. Many of the lazy and stupid poor are dead."[34]

**"Perhaps two-thirds of the world's absolute poor are under the age of 15."**



Poor people are concentrated geographically as well. Poverty dominates much of the African continent, especially the landlocked nations of the arid zone that stretches from Mauritania to Ethiopia and the central region surrounding the vast Congo River basin. In North Africa and the Middle East, rural poverty remains pervasive in North and South Yemen, Egypt, and Morocco; the last two have extensive urban poverty as well.[35]

Within Latin America, poverty pockets are found in southern Mexico and Central America, Haiti and the Dominican Republic, the Andean countries of Ecuador, Peru, and Bolivia, and the northeast of Brazil. In China, the poor are concentrated in the arid, inhospitable mountainous regions of the central and western provinces: Gansu, Guizhou, Ningxia, Qinhai, Shaanxi, Sichuan, and Tibet. In South Asia, poverty continues to dominate the rural areas of Bangladesh, Nepal, and Bhutan, the highland provinces of western Pakistan, and the northeastern states of India, particularly Orissa, Bihar, Madhya and Uttar Pradesh, and West Bengal.[36]

Absolute poverty is rare in affluent lands, yet it is worth noting that industrial countries' own, less-severe form of poverty has also been on the rise during the eighties, particularly in the United States, the United Kingdom, and Eastern Europe. With glasnost, the Soviet Union and Eastern European countries have begun to reveal the extent of deprivation within their borders. One-fifth of Soviet citizens reportedly live below the official poverty line of 75 rubles ($116) a month, and many Poles have seen their livelihoods wither as their economy unravels.[37]

In the United States, the eighties have seen more people living below the poverty line—which stood just over $12,000 per year for a family of four in 1988—than at any time since the War on Poverty was initiated in the mid-sixties. In 1979, the equity of income distribution began to deteriorate rapidly; by 1986, disparities in earnings were the worst on record. Meanwhile, the median family income was lower in 1988 than in 1973, measured in constant dollars, and average weekly earnings were lower than in 1962. Falling real wages and

greater inequality led inevitably to rising poverty: in 1988, some 32 million Americans lived below the official poverty line. Most severely affected are minorities, female-headed households, and the young; one-fifth of American children are growing up in poverty.[38]

Thus, with widening income disparities around the globe, it will not be long before there is a Third World within the First World, and a First within the Third. During the eighties, despite moderate but steady economic growth at the global level, absolute poverty has increased faster than population. The inevitable question is, Why does poverty continue to spread in an age incomparably more prosperous than any in history?

## The Global Poverty Trap

Uruguayan historian Eduardo Galeano once wrote, "The division of labor among nations is that some specialize in winning and others in losing."[39] The members of the impoverished quarter of humanity remain destitute not through any fault of their own. Rather, they are victims of a set of economic and political forces that relegate them to the role of perpetual losers in the global division of labor.

The world's poor are caught by forces at the local, national, and global levels that combine to form a three-tiered trap. At the local level, these include skewed patterns of access to land and other assets, physical weakness and heightened susceptibility to disease, population growth, and powerlessness against corrupt institutions. These are reinforced at the national level by innumerable policies—from tax laws to the structure of development investment—that neglect or discriminate against the poor. And at the global level, the poor are held down by the devastating combination of oppressive debt burdens, high interest rates, falling export prices, and rising capital flight. The debilitating effects of environmental deterioration are also evident at the local, national, and international levels, and are detailed separately in the next section. All these factors and forces, like malevolent counterparts to Adam Smith's invis-

**"In 1988, some 32 million Americans lived below the official poverty line."**

ible hand, strengthen each other as they interlock, tightening the global poverty trap.



In the villages, where the poor live, the first of the poverty trap's four local parts is the lack of productive assets. The poor are poor not only because they do not earn much but because they do not own much either. In developing societies, where three of four people gain their livelihood in agriculture, the most crucial asset is land, as infant mortality statistics starkly illustrate. In Companiganj, Bangladesh, babies born to landless laborers are almost twice as likely to die before their first birthday as those born to owners of just three acres.[40]

Yet ownership of farmland is concentrated in the hands of a fortunate few. (See Table 4.)[41] A rough indicator of land concentration comes from the share of a nation's arable land held by the largest farmers, yet overall distribution is also shaped by the shares held by middle-sized farmers. The best single measure of land concentration is the gini coefficient, a mathematical index of the degree to which land distribution among landowners deviates from equality. At a gini rating of zero, all farmers own the same amount of land. As ownership becomes concentrated in fewer hands, the gini index rises toward one. Latin American nations' land ownership is the most skewed in the world, a legacy of colonial times, when Spanish and Portuguese rulers established vast plantations; 1 percent of landlords commonly own more than 40 percent of the arable land. On the gini scale, Latin American land distribution generally exceeds .75, reflecting extreme inequality. Crowded Asian nations are somewhat better, with gini figures between .51 and .64, while in Africa, where land is less scarce and collective tribal landholding arrangements moderate inequality, ownership patterns fall between .36 and .55 on the gini scale.

Where maldistribution of farmland is severe, population pressures push ever more of the poor into the vulnerable position of being farmers without land. As millions of poor families divide their already small farms between their children, plots shrink to a size

**Table 4: Concentration of Land Ownership, Selected Countries, Early Seventies[1]**

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| Country | Largest Farms: Share of Landowners | Largest Farms: Share of Arable Land Owned | Gini Index |
|---|---|---|---|
| | (percent) | | |
| Latin America | | | |
| Venezuela | 1 | 67 | .92 |
| Colombia | 1 | 48 | .86 |
| Brazil[2] | 1 | 45 | .84 |
| Honduras | 1 | 44 | .78 |
| Mexico | 2 | 47 | .58 |
| Asia | | | |
| India | 1 | 4 | .64 |
| Indonesia | 1 | 14 | .62 |
| Pakistan[2] | 1 | 9 | .52 |
| Philippines[2] | 1 | 12 | .51 |
| Africa | | | |
| Kenya | 1 | 40 | .55 |
| Cameroon | 4 | 16 | .44 |
| Zaire | 1 | 35 | .37 |
| Malawi | 2 | 9 | .36 |

[1]Ownership data from early seventies except where otherwise indicated. All gini indexes calculated from data for early seventies.
[2]Ownership data from early eighties.

**Source:** Worldwatch Institute.

insufficient for subsistence. The mechanization of agriculture in some regions has displaced millions more, as commercial operators expel sharecroppers, squatters, and smallholders. The environmental effects of rising landlessness are particularly severe, as uprooted rural populations push into fragile ecosystems.

The typical poor person is no longer a subsistence farmer but a dispossessed laborer; indeed, the number of landless rural households in the world has never been higher. Estimated in 1981 at 167 million households—938 million people—the landless and near-landless are expected to increase to nearly 220 million households by the turn of the century. They make up a large share of agricultural families in many developing countries, ranging as high as 92 percent in the Dominican Republic. (See Table 5.)[42] Reflecting patterns of land concentration, landlessness is most pronounced in Latin America, somewhat less prevalent in Asia, and still new to Africa, though even there landlessness is rising in more fertile regions.[43]



Because of the dispossessed state of most of the poor, their day-to-day calculus of survival now has three variables: the availability of work, the wages offered, and the price of food. In each case, the prospects are not good. Wages and prices have gone against the poor during much of this decade. The growth of the labor force means that nearly 40 million people enter the job market each year; the Third World will have at least 600 million more potential workers in the year 2000 than in 1985. Already unemployment and underemployment, though somewhat hidden, are rampant in both urban and rural areas of the Third World. Those who lack gainful employment use their time to whatever benefit possible—doing housework, scavenging in garbage dumps, or endlessly searching for work. As the World Commission on Environment and Development wrote, "Most of the so-called unemployed are in fact working 10–15 hours a day, six to seven days a week. Their problem is not so much underemployment as underpayment."[44]

A debilitating but frequently overlooked dimension of the poor's lack of assets is their extreme vulnerability to unforeseen expenses and emergencies such as natural disasters, crop failures, fires, illnesses, funerals, and the costs of legal battles and bribes. To meet these needs a poor family must often borrow at usurious rates from moneylenders, piling debt on deprivation, or must sell or mortgage whatever they have—land, livestock, house, tools, even their future labor—frequently at prices as low as one-third what they could get if

**Table 5: Landless and Near-landless Rural Households, Selected Countries, Mid-seventies**



| Country/Region | Near-landless | Landless | Combined |
|---|---|---|---|
| | | (percent of rural households) | |
| Dominican Republic | 48 | 44 | 92 |
| Guatemala | 47 | 38 | 85 |
| Ecuador | 52 | 23 | 75 |
| Peru | 46 | 29 | 75 |
| Brazil | 10 | 60 | 70 |
| Philippines | 34 | 35 | 69 |
| Colombia | 24 | 42 | 66 |
| El Salvador[1] | — | 65 | 65 |
| Honduras | 46 | 18 | 64 |
| Bangladesh[1] | 33 | 29 | 62 |
| Costa Rica | 11 | 44 | 55 |
| India | 13 | 40 | 53 |
| Mexico | 33 | 18 | 51 |
| Malaysia | 35 | 12 | 47 |
| Africa | 30 | 10 | 40 |

[1]Data from late-seventies to mid-eighties.

**Source:** Worldwatch Institute

they had time to bargain. This vulnerability gives poverty a ratchet effect, making poor people poorer by diminishing both their assets and their income.[45]

Augmenting the vulnerability of the poor has been the fraying of traditional village safety nets. Patron-client relations between landlords and peasants, which, though exploitative, created some feelings of

**"For lack of food the poor have no energy to work, and for lack of work they have no money to buy food."**

responsibility among rural elites, have been replaced by impersonal wage-labor practices. Extended families, which provided limited but efficient mutual support networks, have been increasingly fragmented by permanent migration to cities and seasonal migration to commercial farms. In addition, as discussed in the next section, the fallback resources of the poor—public forests, fields, and waterways—have been both depleted and privatized.[46]



The second part of the poverty trap at the local level is physical weakness and illness. For lack of consistent nourishment, clean water, basic medical care, and sufficient housing space to avoid rapid spread of infection, the poor are chronically weakened by disease. Most pronounced among those one-third of the absolute poor who lack even enough calories to meet their metabolic requirements, physical weakness can combine with low income to form a vicious circle. For lack of food, they have no energy to work, and for lack of work they have no money to buy food. The words of Hari, a Bangladeshi laborer, illustrate this desperate plight: "No work, no work. What will we eat tonight? I'd try to get a job at the construction site where [my brother] Sudir works, but I'm not strong enough. When the bosses look at me, they say, 'We can't hire him. He wouldn't last two hours carrying that heavy cement.' It's true. I'm too weak, but the less I work, the weaker I get, because I have no food to fill my belly. I hope I can last until the harvest." In fact, Hari died days after uttering those words, one of the millions who fall prey each year to poverty's quiet violence.[47]

Population pressures form the third part of the poverty trap at the local level. Rapid population growth forces wages down to the survival level, as the poor compete with each other for scarce work. It stretches investment resources thin and raises the number of children for whom each worker must provide. It overtaxes natural resources, diminishing their productivity. Yet poor couples are driven by a complex set of circumstances into having large families. First, they recognize that some of their children will likely die. Women in the Indian village of Chim[illegible], Guatemala, acknowledge this bitter reality as part of their wedding vows, saying, "I will be a

mother, I will suffer, my children will suffer, many of my children will die young . . . but I will not give up." Second, poor women tend to be the least educated and have the lowest status of all women—both characteristics that are closely related to high fertility rates. Third, they have the least access to means of controlling their fertility.[48]



Finally, poor couples have many children as part of a strategy for economic security. In the constant struggle for survival, the poor see children as an economic asset and retirement plan rolled into one. Absent the economic and institutional conditions in which each individual has good chances of success, families see each child as an opportunity to broaden, diversify, and thereby strengthen their means of support. When times are bad for some, they may be better for others. This "strength in numbers" strategy may lower the chances of pulling the whole family out of poverty, but that is a small price to pay if it reduces the risk of falling into starvation.

The local poverty trap's fourth part is powerlessness. Robert Chambers of the Institute for Development Studies describes the predicament well:

> Ignorant of the law, without legal advice, competing for employment and services with others in a similar condition, the [poor] household is an easy victim of predation by the powerful. It has inherited or descended to low social status. Its position is weak in negotiating terms for the use of its labor or the sale of its produce or assets. It is easily exploited by moneylenders, merchants, landlords, petty officials, and police. Aware of the power of the richer rural and urban people and of their alliances, the household avoids political activity which might endanger future employment, tenancy, loans, favors, or protection.[49]

As peasants in West Bengal, India, say, "Fishes can't afford to live on bad terms with the crocodiles in the pool."[50]

Unable to read, the poor are sometimes misled or intimidated into signing away their rights to land or accepting debt repayment terms

that verge on extortion. Local officials employ well-intended laws and regulations to hassle the less fortunate to the point of paralysis. Legal systems are often a dead end for the poor, riddled as they commonly are with procedural delays and corruption. In places, the exploitation of poor people does not even wear the trappings of legality. The active human rights networks of Brazil and India both report almost daily killings and brutality against the rural poor. When the wealthy go to court against the illiterate poor there is little competition. When they go to war there is none.[51]



Poverty in the world of the poor is like a set of Chinese boxes: within the walls of each box lies a yet more deprived group. The poor understand full well the stratification of their world into layers of power, influence, and wealth, and describe it in pointed terms. In the slums of Calcutta, they differentiate between "three-meals-a-day people," "two-meals-a-day people," and "one-meal-a-day people." In northern Bangladesh, villagers speak of "those who sit and eat" and "those who work."[52]

The inequalities in Third World villages are replicated and reinforced at the national level, where tax laws, budgeting, and voluminous regulations everywhere favor the few over the many. National investments have long been tilted sharply toward the fortunate inhabitants of cities and away from the rural poor. In extreme cases, raw corruption and pharaonic extravagance fuel the diversion of resources. President Mobuto Sese Seko of Zaire, who has allegedly been systematically embezzling export earnings since he took power in 1965 and owns assets estimated at $5 billion, built a runway in his native village long enough for a Concorde. President Houphouët-Boigny of the West African country of Côte d'Ivoire, meanwhile, recently completed construction of a $200-million air-conditioned cathedral that dwarfs even St. Peter's in the Vatican. Trimmed with nine acres of Italian marble and French stained glass, the church sits in an impoverished country where only one-tenth of the population is Catholic.[53]

Côte d'Ivoire's new cathedral is an apt symbol for normal practices

of development investment in much of the Third World. In dozens of nations—Mexico, Peru, Brazil, Nigeria, South Africa, the Philippines, and others—governments have suppressed prices paid to farmers, siphoning millions of dollars into grandiose industrialization projects in the capital. The resulting high-technology facilities, entirely inappropriate to local circumstances of scarce capital and abundant unskilled labor, now stand as monuments both to futility and inequity: too expensive to operate without large state subsidies, they either stand idle or, when funded, continuously remove wealth from poor farmers and laborers to a few hundred salaried government workers and managers. Either way, countries infatuated with construction of modern day industrial temples are dooming their hinterlands to worsening poverty.

The pervasive disparities of income and wealth between rich and poor are exacerbated by innumerable policies. For example, tax codes that on paper look highly progressive, requiring more from the rich than from the poor, are in practice at best neutral and often regressive systems, collecting disproportionately from those who cannot hide their money away in foreign banks and tax shelters. Government control over exploitation of natural resources has frequently been bent by the wealthy to their own benefit: the profits from Mexican and Nigerian oil, South African diamonds, Philippine forests, and Malaysian fisheries, for example, have been appropriated by well-heeled commercial interests.[54]

Overly rigid regulations similarly work against the poor. The urban and rural poor pay a high portion of their income in what might be called "corruption taxes." Barred from obtaining licenses and permits by Byzantine bureaucracies with endless paperwork requirements, they work outside legal channels in the unlicensed businesses of the informal sector. In this subterranean economy, bribery schemes institutionalized over years keep a large portion of earnings flowing to shady black market bosses and, sometimes, to corrupt police. Rickshaw pullers in Calcutta, for instance, live in daily fear that traffic police will demand their *bakshcesh*.[55]

**"Military expenditures absorb one-fifth of state spending in low-income countries."**



For the poor, the most ruinous policy a government can take is that of waging war. In 1989, survivors and refugees in war-ravaged countries—Afghanistan, Mozambique, Angola, Ethiopia, and the Sudan—are the earth's most wretched people. War preparations impoverish billions of others. The military build-up that has been occurring in much of the Third World since 1960 drains $170 billion from government coffers each year. Military expenditures absorb one-fifth of state spending in low-income countries, and a higher portion of gross national product (GNP) than in middle- or high-income nations. Yet military expenditures create less employment and depend more on imports than equal expenditures in almost any other sector. During the budget crises of the eighties, furthermore, military spending has been spared the draconian cutbacks inflicted on other areas of government spending.[56]

National budgets not only favor industrial over rural development, and military over social expenditures, but are also maldistributed within the sectors ostensibly aimed at the poor—rural development, education, and health. Roads and irrigation canals are built in prosperous, influential regions first, reinforcing their advantage. Electricity and piped drinking water are concentrated in areas of cities where residents have demonstrable legal rights to their homes, thus excluding urban and rural poor alike. Where rural electrification is undertaken, it rarely extends to the poorest. Agricultural extension workers spend much of their time advising large landowners, and the remainder advising male smallholders. They do nothing for landless laborers or women, the most disadvantaged groups.[57]

Even international development assistance explicitly targeted to help the "poorest of the poor" has tended to benefit not the poorest fifth of the citizens of a country, but the second fifth up the ladder. National and international agricultural research has also neglected the poorest. The food staples of the poor—cassava and millet, in Africa for example—are only beginning to receive attention commensurate to their importance. Chickens, goats, and donkeys, poor people's farm animals, are similarly underattended in breeding programs.[58]

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Public credit schemes for agriculture flow to the same privileged rural groups. The pattern discovered in a World Bank study on Costa Rica is all too familiar. In 1974, some 80 percent of agricultural credit from the National Bank went to 10 percent of borrowers, a pattern which, as the World Bank noted, is more skewed than the distribution of either land or income in the nation. Likewise, a 1976 study of public credit for agriculture in 10 developing nations showed that large farmers received more than three-fourths of loans, while small farmers received less than one-fourth. Lending to large holders is doubly counterproductive. Not only have large farmers proved themselves to be less productive per hectare and less reliable borrowers than small farmers, they use much of the credit they receive to purchase labor-saving machinery—tractors, harvesters, and the like—which reduces employment prospects for landless laborers.[59]

Education budgets are similarly tilted toward the rich. University education is an excellent investment for any nation, but the poor need primary education first. In sub-Saharan Africa, half of school-age children were not enrolled in 1982, and enrollment has declined since then. Large shares of education budgets, meanwhile, provide highly subsidized university education, disproportionately to children of the urban wealthy. What African governments spend putting one student through four years of college could pay for six years of primary education for a class of 35 poor rural children.[60]

In health care, the same pattern emerges. Subsidized urban hospitals take the lion's share of public health budgets, but help those who least need public assistance. Community-based health workers and rural clinics, the backbone of a health care system that caters to the poor, are consistently underfunded. In developing countries as a group, some 70–85 percent of public health spending goes into expensive curative care, while community health and preventive care combined receive only 15–30 percent.[61]

Reversing the distribution of health expenditures would make the largest improvement in health possible given available resources. The World Bank estimates that in general a life can be saved for

**"In 1989, the Third World owed $1.2 trillion—nearly half of its collective GNP—to industrial country banks and governments."**



under $250 through community-based care, but costs between $500 and $5,000 to save through curative care. The World Health Organization goes further, arguing that increasing annual investment in community-based care by only 75 cents per person would save perhaps 5 million lives each year. It would cover the expense of immunizing the world's children against six deadly diseases, eradicating polio, and supplying the drugs to treat all cases of childhood diarrhea, along with tuberculosis, bacterial pneumonia, and malaria.[62]

At the international level, debt, trade protectionism in industrial countries, and plummeting world prices for the products developing nations export add further layers to the poverty trap. The poor world's debt to the rich is so colossal as to sound surreal. In 1989, the Third World owed $1.2 trillion—nearly half of its collective GNP—to industrial country banks and governments. Argentina owed a staggering $1,800 for each man, woman, and child in the country.[63]

The burden of debt is most severe on some of the poorest countries. In 1987, Brazil's $124-billion debt—the developing world's largest—was 39 percent of its GNP, but the Philippines' smaller $30 billion debt was 87 percent of its GNP. And Zambia's puny debt of $6 billion was 334 percent of its GNP. In more graphic terms, if the Zambian people were to give every penny they earned to their nation's foreign financiers beginning January 1, 1990, they would not eat again until May of 1993.[64]

Staggering though the absolute quantities of debt may be, however, the pivotal issue is which way resources are moving across the North-South boundary. Before 1984, the net flow was progressive: industrial countries gave more to developing countries in loans each year than they took back in interest and principal payments. After that, the flow not only reversed itself but became a backward torrent: by 1988, the poor were paying the rich $50 billion a year. The massive diversion of resources to the North has taken a toll not only on the people of developing lands, but on the land itself. Forests have been recklessly logged, mineral deposits carelessly mined, fragile lands

put to the plow, and fisheries over-exploited, all to pay foreign financiers. Fledgling environmental ministries, just as health and education agencies, have seen their budgets slashed under debt-driven austerity.[65]

The debt crisis has its roots in the oil price increases of 1973 and 1979, when petroleum-exporting countries directed their massive new inflows of cash to industrial country banks, and developing countries, having just laid out their money to buy oil, turned to the banks to borrow some of it back. The banks, finding themselves flooded with funds, agreed to enormous, often poorly researched loans, allowing Third World governments to maintain the flow of resources into the inequitable spending programs and industrialization schemes they had been pursuing almost uninterrupted since independence.

Then, in the early eighties, industrial nations tightened their money supplies to fight inflation, and the United States began borrowing large amounts to finance expanding budget deficits. Dollars, yen, and deutschmarks all became more expensive for Third World countries at the same time that interest rates rose. Because many of the loans had been given with variable interest rates, debt payments skyrocketed. The World Bank calculates that each percentage point rise in interest rates costs the 17 most heavily indebted countries $5 billion a year.[66]

As debt piled on top of developing economies, export earnings simultaneously collapsed from under them. Despite several decades of industrialization, most developing countries remain heavily dependent on exports of such raw materials as copper, iron ore, and timber, and of such cash crops as sugar, cotton, and coffee. The poorest countries depend on these primary commodities for three-fourths of their exports. Yet, since 1980, the prices for such goods have plummeted, particularly relative to the prices of the manufactured products that Third World countries import; in 1986 alone they dropped by a third in relative terms, translating into a loss for the developing world of $94 billion. Excluding petroleum products, the

prices of 33 commodities monitored by the World Bank fell by 40 percent between 1980 and 1987, catching the Third World in the scissor-squeeze of rising debt and falling earnings. (See Figure 4.)[67]



The deterioration in the "terms of trade" between rich and poor is the result of four interlocking trends. First, since this decade began, slow economic growth in industrial countries, particularly in industries that rely heavily on Third World raw materials, has meant weak markets for commodities. Second, technical advances have led industries to replace developing country exports with cheaper industrial country products. Optical fibers have replaced copper wire in telephone systems, for instance, decimating the market for the main export of Zaire and Zambia. High-fructose corn syrup has replaced cane sugar in soft drinks such as Coca-Cola, reducing world cane demand by perhaps one-fourth.[68]

Rising trade barriers in rich countries are a third cause of declining terms of trade for poor lands. The European Economic Community, for example, levies a tariff four times as high against cloth imported from poor, heavily indebted nations as from rich ones. Strict quotas in Europe and the United States on imports of sugar from developing countries raise the prices paid by their own citizens, while curtailing the market for sugar exporters by $7.4 billion, at last estimate. All told, World Bank figures suggest, each year industrial country trade barriers cost developing countries $50–100 billion in lost sales and depressed prices. And fourth, the cruel logic of the debt crisis itself has driven down prices for Third World exports: as dozens of nations racing to keep up with debt payments reduce imports and boost exports, they glut commodity markets, exacerbating the price declines.[69]

Beyond the disastrous trends in bank loans and international trade, developing countries' economic turmoil has scared off rich country investors and incited national elites to bundle their fortunes off to foreign banks—where they are hidden from taxation and invested in the further enrichment of wealthy lands. The dimensions of this exodus of private money are colossal. So-called flight capital from Latin

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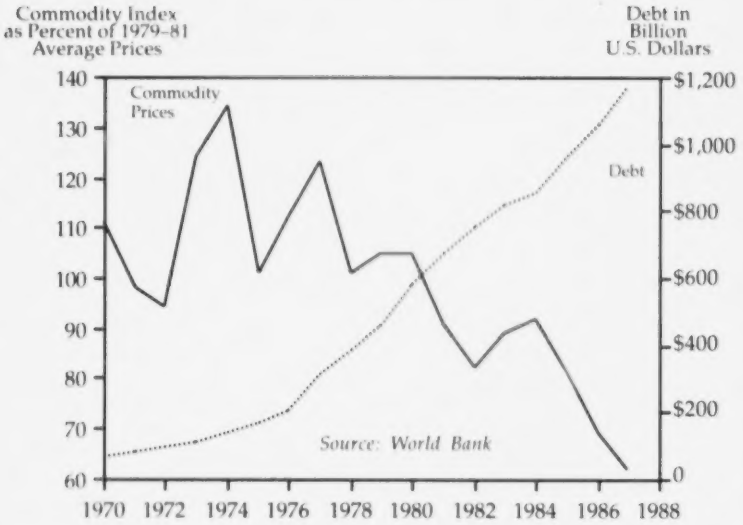
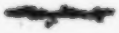



**Figure 4: Commodity Price Index and Total Third World Debt, 1970–87**

America amounted to about $250 billion by late 1987, and as U.S. Treasury Secretary Nicholas Brady has said, "In many cases flight capital is larger than outstanding debt." Venezuelans' overseas holdings are valued at $58 billion, for instance, while the nation's external debt is only $37 billion.[70]

As countries have foundered in the inhospitable world economy of the eighties, the World Bank and International Monetary Fund have promoted controversial economic reforms called "structural adjustment." Structural adjustment is thought of by its proponents as shock-treatment for a country's economy, quickly eliminating ineffi-



ciencies so that growth, and debt payments, can resume. Currency devaluation, export promotion, import reduction, sale of state-run industries, and government budget cuts are common ingredients of the reforms.



Between 1980 and 1988, some 59 countries received long-term structural adjustment loans from the World Bank. Evidence suggests that these countries have shown somewhat better macro-economic performance than countries in similar straits that did not adopt programs, but other evidence appears to contradict it. For example, apparent benefits from structural adjustment policies may be partially due to the substantial new loans made to countries agreeing to Bank and Fund terms. There is no doubt, however, that adjustment packages have brought returns far below expectations. One World Bank paper speaks of adjustment as "taking far longer and proving far more arduous than originally expected." Because of its often draconian measures, structural adjustment may have caused more bread riots than cases of economic rejuvenation.[71]

Worse, controversial evidence accumulating from around the world suggests that many structural adjustment measures hurt the poor disproportionately. In Côte d'Ivoire, macroeconomic adjustment measures have been associated with a near doubling of the incidence of "hard core" poverty, according to one World Bank assessment. Case studies carried out by UNICEF in Botswana, Brazil, Chile, Ghana, Jamaica, Madagascar, Peru, the Philippines, South Korea, Sri Lanka, and Zimbabwe show deterioration in health, education, and living standards. At the very least, structural adjustment has not been sufficient to counter the damage that debt and export losses have imposed on the poor. Distinguishing between the symptoms of the ailment and the side effects of the intended remedy is a daunting challenge, and one that has been long neglected. Belatedly, the World Bank has inaugurated its Social Dimensions of Adjustment Program, with research under way in 20 African countries.[72]

The basic problem with structural adjustment, however, is not what it does but what it fails to do. No impoverished nation can reform its

economy sufficiently in the short term to compensate for massive debt burdens (aggravated by high real interest rates in New York, caused by budget deficits and tight monetary policies in Washington, D.C.) and falling prices for its goods (exacerbated by trade policies in the European Economic Community). The economy that most needs adjustment is the global one. Until that takes place, structural adjustment will continue to be little better than, in the words of UNICEF, "a rearranging of the furniture inside the debtors' prison."[73]

The global poverty trap, with its local, national, and international parts, is the underlying cause of mass destitution in a prosperous world. Yet poverty has an increasingly ecological face as well. The poor have long suffered more than others from environmental decline. But, in some circumstances, poverty itself becomes a cause of environmental degradation, and as such takes on added significance for all of humanity.

## Poverty and the Environment

Most of the world's looming environmental threats, from groundwater contamination to climate change, are byproducts of affluence. But poverty can drive ecological deterioration when desperate people overexploit their resource base, sacrificing the future to salvage the present. The cruel logic of crucial short-term needs forces landless families to put rain forest plots to the torch and mountain slopes to the plow. Environmental decline, in turn, perpetuates poverty, as degraded ecosystems offer diminishing yields to their poor inhabitants. A self-feeding downward spiral of economic deprivation and ecological degradation takes hold.

In the rural Third World, human reliance on ecosystems goes unmediated by the long chains of commerce, industry, and civil infrastructure that shape life in the rich countries. For the have-nots, food comes from the soil, water from the stream, fuel from the woods, traction from the ox, fodder from the pasture, reeds to make mats from the stream bank, fruit from the trees around the hut. Poor

people know that to endanger any of these things is to imperil themselves, and the lives of their offspring. The economy of the rural poor is measured in the fertility and productivity of their environment.



Award-winning journalist Richard Critchfield, who spent a decade living in dozens of Third World villages, believes this close physical relationship with the environment creates one of the few nearly universal features of village culture: "Most villagers have a love of their native land, a desire to own land, an intense attachment to their ancestral soil . . . a reverence for nature and toward habitat and ancestral ways." Poor farmers with secure rights to a piece of land tend to care for it meticulously, taking a long-term view and forgoing current benefits for dependable future gains.[74]

The poor knowingly harm their environment mainly when under duress. Pushed to the brink of starvation, evicted from familiar lands, driven to the frontier by the pressures of population growth, or deprived of alternatives by misguided laws, they lack access to sufficient quantities of land, water, or capital to provide themselves with a sustainable livelihood.

Thus, the central pole around which the downward spiral turns is the lack of resources—the first element of the local poverty trap. Anthropologist Sheldon Annis of the Overseas Development Council in Washington, D.C., illustrates the crucial difference between poor but secure smallholders and dispossessed and insecure landless households:

> In the Guatemalan village where I lived in the late 1970s, I used to marvel at the elegance with which poor farmers could optimize every available scrap of resources—every ridge of land, every surplus hour of time, every channel of water, every angle of sunlight. Though the Indians where I lived are surely poor, they do own their own plots of land. They depend upon and care for what is theirs. When I go back to the village, I always find that my friends' fields look just as I remembered them.

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> Ten years ago I also worked in Guatemala's northern Quiché province, which for many reasons is much poorer than the town where I lived. There, I recall watching in horrified fascination as an Indian farmer and his son planted their plot of corn on a forested slope. The land was so steep that the son had to be held in place with a rope looped around his waist. As he hopped from furrow to furrow, his father let out slack from around a tree stump.
>
> When I returned to that spot recently I was not surprised to find that the farmer and his son were no longer there. And neither was the hillside. What remained was a reddish, eroded nub—which looked just like the next and the next and the next former hillside.[75]

The dispossessed farmer that Annis watched in Quiché probably knew better than Annis himself how destructive hillside farming is, but lacking good farmland or other productive resources, he had no choice but to exploit the only land available to him.

Access to a resource without control over it is calamitous. Nothing incites people to deplete forests, soils, or water supplies faster than fear they will soon lose access to them. Neither hired workers, nor hired managers, nor tenant farmers care for land as well as owners. In Thailand's forests, for example, squatters given long-term rights to use their plots care for the land better than squatters with no legal standing, but not as well as those who own their plots outright.[76]

As the global poverty trap tightens and the world's poor become increasingly insecure and dispossessed, the conditions for ecological degradation spread to more of the earth's fragile lands. Two of the most common sequences by which poor people fall, or are pushed, into the downward spiral are illustrated by the situations in Nepal and Costa Rica.

Nepal exemplifies the way sheer growth of human numbers feeds the spiral, when human practices at a given level of technology exceed the carrying capacity of local environments. As population

**"In Nepal, the health of a village's children can be read in the retreating tree line on surrounding slopes."**

swells, peasants in highland valleys are forced to expand their plots onto steep forested hillsides, extending the distance women must walk to gather fuel and fodder. Over the past decade, during which forests have shrunk to half of their original extent, women's average daily journies have increased by more than an hour. Pressed for time, their workday in the fields shortens, family income falls, and they have both less food to cook and less time to cook it. Shubh Kumar and David Hotchkiss of the International Food Policy Research Institute report not only that daily food consumption in the region has fallen by 100 calories per person on average, but that—in village after village—childhood malnutrition rates and deforestation rates are closely coupled. In the hill regions of Nepal, in other words, the health of a village's children can be read in the retreating tree line on surrounding slopes.[77]



Where population density is less acute than in Nepal, skewed land ownership patterns have the same effect—large holdings are underattended, small holdings overburdened, and millions left landless. The growing ranks of the dispossessed make use of whatever infertile land is not taken by others, and squeeze as much out of it as possible, fearful of both eviction and starvation. In Costa Rica, a country often praised for its enlightened environmental policies, the poor have been driven into this state largely by a cattle boom that has swept the nation since the early sixties.

Costa Rica was once almost completely cloaked in tropical forest, holding within its small confines perhaps 5 percent of all plant, animal, and insect species on earth. By 1983, after two decades of explosive growth in the cattle industry, pastures covered roughly half of the nation's arable land, only 17 percent of the original forest remained, and soil erosion was rampant.

Sheldon Annis's detailed analysis of the cattle policies of Costa Rica show that, aside from its ecological toll, the cattle boom has been an economic debacle as well. It was driven not so much by market forces as by heavy flows of international capital to, and special treatment for, the 2,000 politically powerful ranching families who con-

trol the industry: During the past two decades, cattle ranchers cornered nearly 40 percent of all agricultural credit but produced scarcely 10 percent of agricultural output. They continued receiving loans even when they did not pay off their earlier ones. The inputs they imported were untaxed or undertaxed. Their exports were supported with a panoply of generous incentives. And their concerns were quick to reach the halls of the agriculture ministry, which were, often as not, staffed with other cattle ranchers.[78]

The Costa Rican poor, for their part, have only gotten hunger out of the deal. Smallholders have been pushed from their land to make way for four-legged competitors. And rural employment opportunities dried up, because ranching is the least labor-intensive agricultural activity in the country. The rising tide of landlessness has spilled over into the expanding cities, onto the fragile slopes, and into the forests, where families left with little choice accelerate the treadmill of deforestation.[79]

The poverty trap patterns evident in Nepal and Costa Rica—population growth and unequal control over resources, reinforced by counterproductive development policies—reappear in infinite variations around the world. Yet the net effect is universal: the poor are increasingly concentrated in fragile regions where land is least productive and tenure least secure—arid and semiarid lands, mountain slopes, tropical forests, and sprawling shantytowns around overcrowded cities. The geographic concentration of poverty in inhospitable lands is driven partially as people move in, but more so by the heightened population growth rates poverty itself brings. Inevitably, the poor are pulled into the downward spiral in growing numbers. Jeffrey Leonard of the World Wildlife Fund–Conservation Foundation in Washington, D.C., has attempted to roughly quantify this trend using data from the World Bank, the United Nations, and the International Food Policy Research Institute.[80]

Leonard's estimates focus on the poorest fifth of people in developing countries, a subset including about 780 million of the absolute poor. He calculates that 370 million of these people—47 percent of

**"With uncanny regularity, the world's most impoverished regions also suffer the worst ecological damage."**

the total—live on marginal or fragile lands, where, at today's population densities, the downward spiral is almost inevitable. If this ratio holds true not just for the poorest fifth of people in the Third World, but for the entire class of people in absolute poverty, then 580 million of the 1.2 billion people in absolute poverty are now trapped in the spiral. Many others suffer from environmental degradation, but the impact on their living standards so far has been more limited.[81]



A survey of the globe supports Leonard's analysis strongly. With uncanny regularity, the world's most impoverished regions also suffer the worst ecological damage; maps of the two are almost interchangeable. In Third World cities, the poor live in shantytowns that sprawl through insect-infested floodplains, up perilous slopes, and around hazardous industrial plants. In China, India, Pakistan, and Afghanistan, the impoverished live in degraded semiarid and arid regions or in the crowded hill country surrounding the Himalayas; Chinese poverty is particularly concentrated on the Loess Plateau, where soil is eroding on a legendary scale.[82]

In the Philippines, the northeast of Thailand, and the basins of the great Amazon and Congo rivers, the poor scrape out a livelihood in ashen plots burned from vanishing forests. In Latin America, they live in the wasted lands of Haiti, on the exhausted soils of northeastern Brazil, and in the gully-riven highlands of Central America and the Andes. In Africa, they inhabit the parched plains south of the Sahara, the overcrowded slopes of Ethiopia, Rwanda, and Burundi, and—by political decree—the inhospitable drylands in the southern reaches of the continent. The legacy of colonialism for the African population of Zimbabwe, for instance, has been the right to farm the most remote, unproductive, and fragile lands. Likewise, black South Africans are relegated to infertile scrub euphemistically called tribal homelands by the ruling whites; the majority of South Africans are thus as disenfranchised environmentally as they are politically.[83]

The same forces that have pushed 580 million people into the downward spiral—lack of secure control over resources, population

growth, inequity, and misguided policies—are largely responsible for the deterioration of nonagricultural land. Throughout history, poor people have drawn upon a resource base far larger than their own land. They gather fruits, nuts, fish, game, roots, leaves, fibers, reeds, dung, and wood from so-called common property resources—hillside forests and lowland swamps, rivers, riverbanks, and floodplains, lakes and lake shores, open rangeland and dense thickets. These areas, often thought of as empty wastes by the better off, are a critical safety net for the poor, providing a fallback means of survival, particularly in hard times. In dryland regions of India, the poor gather one-fifth of their annual income, along with numerous nonmarketed goods, by harvesting the natural products of common areas.[84]

Over generations, most agricultural and fishing villages and pastoral bands evolved intricate codes of conduct to avoid depleting the commons upon which they depended. For example, generations of poor, mostly black Brazilians who lost out in the plantation economy of Brazil's impoverished Northeast wandered into the mangrove swamps that stretch 1,000 kilometers south from the city of Salvador. There, unacknowledged by state authorities, they formed an underground social and economic world built on the sustainable harvesting of coastal fisheries. The fisheries are effectively protected by stringent apprenticeship requirements that limit the number of fishers and by detailed territorial, seasonal, and tidal rights to sites.[85]

Similar resource management regimes have traditionally protected poor people's environments in much of the world, though they varied in their effectiveness and impact on social equity. Yet in vast areas of the Third World, common lands—whether forested slopes, drylands, or coastal zones—have been turned into private property or become heavily degraded, or both. In India, the decline in area is well documented. N.S. Jodha of the International Crops Research Institute for the Semi-arid Tropics in Pantancheru, India, found the area of Indian dryland commons to have shrunk by 26–63 percent since 1956 in the 80 villages he studied. Their decline in productivity was equally dramatic.[86]

Commonlands worldwide have been appropriated by the fortunate, turning a public resource into a private one. Distributing common areas to the landless might be a boon for both the environment and the poor, but the privatization of the world's commons has been far from even-handed. Jodha's study of Indian dryland commons found that over the past three decades, more than half of the common property distributed through the government agrarian reform program has ended up in the hands of those who already own significant quantities of land. Communal pasture in the savannah of Botswana, meanwhile, has been fenced by large ranchers, with support from the World Bank. Many so-called land reforms in Latin America have simply exported the rural underclass to a fragile rain forest frontier, where new settlers ravage ecosystems previously managed for generations by tribal people. Almost without exception, the net effect of state land policies has been to drastically curtail common property resources open to the poor, without expanding their private property resources commensurately.[87]

As commercial interests encroach on common resources traditionally exploited by subsistence or near-subsistence users, the resources are often depleted rapidly. In the Indian coastal states of Kerala, Goa, and Karnataka, 150,000 people earn their living in small-scale, nonmotorized fishing. Introduction of mechanized trawlers in the seventies both reduced the overall harvest of mackerel and devastated the livelihood of the poor, because the trawlers exceeded the sustainable yield of the fishery. Hundreds of the Brazilian fishing communities already discussed, along with their counterparts in Indonesia, the Philippines, and elsewhere, have been similarly impoverished by unregulated and unsustainable commercial fishing.[88]

The deterioration of common areas is sometimes most directly caused by the breakdown of traditional management regimes that takes place as governments nationalize the resource base or intervene obtrusively in its use. Since the beginning of this century, newly independent nations freeing themselves from colonial bonds have followed the path of their colonizers, codifying in law the old policy that common resources are the domain of the sovereign. A tangle of

contradictory legal rights and overlapping jurisdictions, often combined with weak or corrupt ministries and courts, has undercut the authority and legitimacy of traditional management regimes—and thereby poor people's control over their resource base—without providing a workable substitute. Predictably, these failed policies have left the rich richer, the poor poorer, and the environment denuded.

In the northern Sahel region of Mali, for example, villages traditionally enforced local restrictions on tree cutting for sheep and goat fodder by confiscating and slaughtering the best breeding male of the offender's flock. This punishment, swift and harsh, kept forests intact over centuries. When government foresters began to implement the nationalization of woodlands in the late sixties, however, villagers who enforced the traditional rules became liable for breaking the law and faced stiff fines. National law does forbid cutting of many trees, but villagers rarely report offenders to forest guards, who, according to anthropologist Joshua Bishop, "after tax collectors . . . are the state agents most likely to visit a village, and most likely to demand money."[89]

Likewise, in the African Sahel, burning of rangelands to get a fresh flush of grass has been practiced for centuries, yet it is no longer controlled by local mechanisms, and therefore runs rampant. Meanwhile, internationally supported programs to drill wells for a permanent water supply in the region have backfired, because all herders are allowed free access to the water. Without the traditional controls to limit the number of stock present at a watering site, these tube wells have become the centers of defoliated wastelands locally referred to as "rings of death." M.S. Swaminathan, president of the International Union for the Conservation of Nature and Natural Resources, writes, "Restoring to the community the responsibility that was originally its own may be our only hope for the future protection of our soil, water, fisheries, pastures, forests, and wildlife."[90]

Poor people's control, or lack of it, over trees is a particularly neglected component of the poverty-environment spiral. Like land and livestock, trees are economic assets that provide a flow of bene-

**"Many so-called land reforms in Latin America have simply exported the rural underclass to a fragile rain forest frontier."**

fits—including fruit, fodder, shade, soil regeneration, construction materials, and fuel. Like other assets, they also can be sold in times of need, a use growing in importance as the poor lose their traditional safety nets and become more vulnerable.



A poignant illustration of the function of trees as insurance comes from Bangladesh. In the early seventies, the family of Abu and Sharifa suffered a long string of impoverishing misfortunes—famine, illness, loss of inherited land in a family conflict—and was forced to sell off one asset after another to survive. After selling their plot, cow, farm implements, furniture, and jewelry, Abu and Sharifa resorted to cutting down their two trees to market them as firewood.

> After striking a root with his hoe, Abu motions for Nozi [his son] to move away and pushes the jackfruit tree. As it totters to the ground, his eyes fill, but he checks the tears, staring numbly at his wife and son. . . . Abu chops another root, and continues, "There is no rice in my household and I have six children to feed. In June I cut down my mango tree, and now I am chopping up my jackfruit tree. My children will never eat fruit—how can I afford to buy it in the bazaar? Rich people in this country don't understand how my stomach burns."[91]

Abu and Sharifa's plight is tragic but in one way they are fortunate: they are allowed to cut and sell their trees. Many governments attempt to protect forest cover by regulating, taxing, or prohibiting tree cutting, transport, or sales. Their efforts, however, are counterproductive, leaving poor people little incentive to plant or care for their trees. Poor people are rational: if they were encouraged to plant rice but not allowed to own, harvest, sell, or transport it, they would not grow rice either. Some of the areas most severely denuded of trees—for example, parts of Haiti, Africa, and India—have suffered deforestation in part because poor people, especially poor women, have few rights to trees. (See Table 6.)

Wood markets are also commonly distorted by a thicket of tree

tenure rules. In parts of India where commerce in wood is highly restricted, only powerful traders can bribe police and get away with illegal transit. Poor peasants who grow the trees, consequently, get as little as one-fourth of the price their trees fetch in markets not far away. In West Africa, peasants sometimes sell standing trees for as little as 1 percent of the final price, because they lack the equipment to cut and haul timber and the friends in high places to help them operate successfully in the underground economy. In Haiti, by contrast, a thriving reforestation program owes part of its success to giving farmers full rights to cut and sell their trees at will. Farmers have planted more trees than expected and cut down fewer, preferring the insurance of standing trees to cash from immediate sales.[92]

Even where poverty is not a cause of environmental decline, it is a ticket to suffer environmental abuses caused by others. This is particularly apparent among the fifth of the poor who live in urban areas. The poor of Mexico City, São Paulo, Shanghai, Calcutta, Bombay, Manila, Lagos, Cairo, and the other mammoth cities of the Third World face all the environmental perils of underdevelopment along with those of overdevelopment. Their cookstoves fill their hovels with old-fashioned smoke, multiplying the danger of respiratory diseases such as tuberculosis that run rampant through crowded slums, while in the streets they breathe modern varieties of air pollution in concentrations that rival the worst recorded in industrial lands. Lacking adequate sewerage and water supplies, they drink and bathe in water contaminated with both human and chemical wastes.[93]

The shantytowns of the poor are found in areas eschewed by the better off: in floodplains, on steep slopes, around—sometimes in—garbage dumps containing unknown quantities of toxic materials, and near industrial zones. The fact that Bhopal's victims were overwhelmingly poor was no coincidence; industrial accidents worldwide take the lives of those who cannot afford to live far from the belching stacks.[94]

The disproportionate exposure of the poor to pollution and hazardous materials has gone almost unmeasured in the Third World,

**Table 6: Tree Tenure Rights in Selected Countries and Regions, Late Eighties**



| Country/Region | Rights of Poor to Trees |
|---|---|
| French-speaking West Africa | Governments generally claim all trees as their own and allow farmers to cut them only after completing a laborious permit process. Felling valuable species is prohibited, dissuading farmers from planting them. Armed forest guards in Niger charge villagers high fines for illegal cutting. |
| Sudan | Forest laws prohibit tree cutting without permission from the local forest office, except when clearing ground for cultivation. |
| Ethiopia | Government land redistribution to large state-run collective farms in 1974 left peasants without long-term rights to individual plots, destroying the incentive to plant trees. |
| Kenya | In some areas, traditional laws dictate that only men have rights to trees, even where women are allowed land rights. For women, planting trees is sometimes considered insubordination by male household heads. |
| India | While tree tenure laws and practices vary widely from state to state, wood transport and sales are commonly restricted with burdensome regulations. In some regions, cutting trees requires a forest department permit, obtained through a time-consuming process that often involves bribes. |
| Haiti | Historically, a web of laws restricted, prohibited, or heavily taxed tree cutting. Peasants called trees even on their own land *pyebwa leta* (government trees). Local forest agents still enforce taxes, compelling peasants to either cut their trees surreptitiously or bribe officials. |
| Honduras | Felling trees without permission of the Honduran Forest Development Corporation is a crime even for farmers on private land. |

**Sources:** Louise Fortmann and John W. Bruce, *Whose Trees? Proprietary Dimensions of Forestry* (Boulder, Colo.: Westview Press, 1988); Paul Harrison, *The Greening of Africa* (New York: Penguin Books, 1987); Robert Chambers and Melissa Leach, "Trees as Savings and Security for the Rural Poor," *World Development*, Vol. 17, No. 3, 1989.

but some idea of its magnitude can be assessed by examining the situation in the United States. Neighborhood-by-neighborhood comparisons of income level, race, and toxic waste site location reveal a disturbing but predictable pattern. The poorer the neighborhood, and the darker the skin of its residents, the more likely it is to be near a toxic waste dump. Three-fourths of hazardous waste landfills in the American Southeast are in low-income, black neighborhoods, and more than half of all black and Hispanic Americans live in communities with at least one toxic waste site. In the United States as in the Third World, the rich get richer and the poor get poisoned.[95]

The environmental victimization of the poor extends beyond local hazards. The truly global environmental dangers, climate change and ozone depletion, will endanger everyone, but the poor are likely to suffer the most. Spending almost all of their days outdoors under the direct rays of the sun, the rural poor will be exposed to far more of the ultraviolet radiation that is projected to reach the earth's surface if the ozone layer is further depleted. If, as expected, ultraviolet radiation tends to weaken the human body's immune system, ozone depletion could spell the end for millions of poor children, whose hungry, disease-wracked bodies already have little resistance to illness. Effects of increased ultraviolet radiation on food and cash crops are largely unknown, but even slight harvest reductions could have catastrophic effects on those who live at the margins of survival.[96]

More troubling still are the potential impacts of global climate change caused by the accumulation of heat-trapping greenhouse gases. Low-lying countries such as Bangladesh, Egypt, Indonesia, and Thailand could lose large areas of cropland as seas rise and storms become more severe in the next 30–40 years. Many of the world's most productive agricultural areas will suffer higher heat, reduced rainfall, or both, increasing the frequency of massive crop failures. Storms, floods, droughts, heat waves, famines, and social upheaval—all likely to be commonplace in a greenhouse world—are precisely those events that tend to make poor people poorer by forcing them to sell their few assets or go deeper into debt.[97]

**"In the United States as in the Third World, the rich get richer and the poor get poisoned."**



In addition, climate change could divert resources away from the poor on a scale unimaginable today. The debt burden of the eighties—on which UNICEF blames the death of half a million children per year—could be dwarfed by the climate burden of the twenty-first century. Health, education, and antipoverty budgets would probably be slashed as governments pour hundreds of billions of dollars into sea walls, new irrigation systems, flood prevention, and the countless other projects that would be necessary to minimize the risks of social and economic collapse. Throughout history, hard times have almost always widened the gap between rich and poor. There is no reason to believe uncontrolled climate change would be any different.[98]

With perhaps 580 million poor people trapped in the vortex of economic and environmental deterioration, the future of poverty alleviation—and of environmental protection—will contain unprecedented challenges. The numbers of people already suffering from environmental deterioration, many of whom are not poor by the strict definition, are large: In 1984, the livelihoods of 850 million people were estimated to be at risk due to desertification. In 1980, acute fuelwood shortages were estimated to afflict 100 million. Some 500 million of the world's highland residents are in jeopardy from soil erosion and deforestation. Another 200 million inhabit tropical forests, where fires rage through the dry months. In the world's cities, more than 1 billion people breathe air choked with excessive quantities of suspended particulate matter.[99]
If climate change, soil erosion, deforestation, and population growth continue along their current trajectories, the poverty rate will almost certainly skyrocket, perhaps doubling worldwide by the second half of the next century. In other words, without major changes in policy at every level, from multilateral institutions to the smallest villages, half of humanity could be living in absolute poverty some time between 2050 and 2075.

Whatever the numbers, there is no doubt that if destructive environmental trends are not controlled, many millions more will be pulled into the maelstrom. Conversely, if the global poverty trap is not dis-

mantled, there will be no way to control the growth of deserts and disappearance of forests, to protect hillsides or wetlands, or preserve the diversity of life on earth. Without dramatic action soon, the downward spiral of economic deprivation and environmental degradation could accelerate out of control, destining the loss of ever more land and lives.

**Reversing the Downward Spiral**

"During the anticolonial campaigns we were told that development would mean better living conditions. Several years have gone by, and all we see are people coming from the capital to write about us. For me the hoe and the water pot which served my grandmother still remain my source of livelihood. When I work on the land and fetch water from the river, I know I can eat. But this development which you talk about has yet to be seen in this village."[100] These words, spoken by a Kenyan woman a decade ago, remain true for most of the world's poor.

National development, while benefiting the middle and upper classes handsomely, has either helped the poor little or actually hurt them. Yet the means and methods are at hand to alleviate the worst aspects of poverty. Around the world, public and private initiatives have created hundreds of innovative ways to pry open—if only slightly—the jaws of the poverty trap, and thus to reverse the downward spiral. Turning this potential into a reality, however, will require national governments and international agencies to redefine development goals. It will also require decisive international action on dangerous global economic and environmental trends.

The essence of true development is distilled in Mahatma Gandhi's concept of *antyodaya:* true development puts first those that society puts last. In Gandhi's words, "Whenever you are in doubt . . . apply the following test. Recall the face of the poorest and the weakest man whom you may have seen, and ask yourself, if the step you contemplate is going to be of any use to him. Will he gain anything by it? Will it restore him to a control over his own life and destiny?"[101]

**"The only true experts on poverty are the poor."**



For development to help the poor, it must put them first not only as intended beneficiaries, but as active participants, advisers, and leaders. True development does not simply provide for the needy, it enables them to provide for themselves. This implies a great deal of humility on the part of outsiders. Few professional plant breeders, for example, could support their families on a steeply sloping plot in East Africa, Central America, or Nepal. And, as nutrition analyst Paulus Santosa put it, "It would be very hard to find professional nutrition workers in Indonesia today who can raise a family of five with U.S. $0.50 per day and stay healthy." The only true experts on poverty are the poor.[102]

The groundwork for true development is expanding impressively in many regions as poor people organize themselves to fight poverty and environmental decline. Indeed, the accelerating proliferation of self-help groups is the most heartening trend on the poverty front. Grassroots action has grown steadily, if unevenly, since mid-century, as an expanding latticework of independent religious and secular development groups have organized among the poor. This decade, however, self-help organizations have spread explosively, as economic and environmental conditions have deteriorated and, in some regions, as political systems have become more open or democratic. Grassroots environmental and antipoverty groups probably number in the hundreds of thousands, and their collective membership in the hundreds of millions.[103]

The grassroots front lines have produced some of the most innovative strategies for dismantling the poverty trap's local parts—lack of secure control over productive resources, physical weakness and illness, population growth, and powerlessness. Spotlighting a few successful efforts helps reveal the opportunities for dramatic progress when the poor are enabled to overcome old barriers.

Information is one of the most important of these productive resources, as two examples from Bolivia demonstrate. Tucked 3,000 meters above the sea in the bitter heights of the Andes is a desolate Quechua Indian region called Raqaypampa—within one of the poor-

est and most isolated areas in all of Latin America, and a classic illustration of the downward spiral. Deforestation and overgrazing have lowered the land's productivity and reduced local incomes. In the mid-eighties, a culturally sensitive independent development organization from Cochabamba called CENDA began working with the area's traditional peasant associations to find ways to improve the situation. CENDA's action-oriented research approach led them to focus on a three-pronged educational strategy. Starting a local bilingual newspaper, a Quechua-language radio station, and a training program proved a powerful way to unleash the peasants' knowledge of problems and opportunities. The residents prized the newspaper so much, for example, that they pressed those who were literate to read each edition aloud. With the education program's success, Raqaypampa and CENDA's efforts expanded into a multitude of other fields, notably environmental restoration. Tree planting efforts and better soil and pasture management have spread across the region. Greater access to information was in large part responsible for the area's turnaround.[104]

In the rugged Yungas region north of La Paz, hundreds of impoverished peasants take high school–level courses in market towns when they come to sell their produce. The curriculum, designed by a dedicated independent group called CETHA to be relevant to local conditions, also offers intensive week-long vocational courses during the agricultural slack season. Most important, the effort has managed to enroll nearly as many women as men. Studies on every continent show that as female literacy rates rise so do income levels, nutrition levels, and child survival rates; at the same time, population growth slows, as women gain the self-confidence to assert control over their bodies.[105]

Meanwhile, a new generation of loan programs has found a direct and highly effective way to increase poor people's access to productive assets. The world's premier loans-for-the-poor initiative was started by Bangladeshi Mohammad Yunus, who abandoned his academic economics post in the mid-seventies to follow English poet William Blake's advice: "He who would do good to another must do

it in minute particulars." In 1976, Yunus began distributing tiny loans, around $65 apiece, to landless villagers so that they could buy the most basic assets, such as rice hullers, cows, tools, and raw materials. The project has spread rapidly. In 1983, Yunus established the Grameen (Village) Bank, which, by early 1989, had half a million borrowers and was adding more than 10,000 a month. Fewer than 20 percent of the loans go to men, because, as Yunus says, "Women see the worst kind of poverty."[106]



Grameen's thousands of "bicycle bankers" now wander the alleys and dusty paths of Bangladesh telling the landless about the bank that makes loans to the poor at 16 percent annual interest—a tenth what moneylenders charge. Because the poor lack assets to use as collateral, Grameen has devised an ingenious peer pressure method to ensure repayment. Loan applicants must find four others with whom to apply, and the group is then responsible for ensuring that all members pay. Repayment rates are higher than for any commercial lending program, with only a few percent not meeting their obligations; many actually pay their weekly installments in advance in order to get a second loan sooner. Grameen's clients have augmented their incomes dramatically. One study found that borrowers earned 43 percent more than their counterparts in nearby villages where the bank did not yet operate. Income gains were largest, furthermore, for the poorest borrowers.[107]

Trees are another asset that can liberate the poor. In the Indian state of West Bengal, a government program has enabled villagers to turn a feeble land reform into a route out of the spiral. In the Midnapore District, with a population of 7 million, a government land redistribution in the late seventies had unintentionally followed in the path of dozens of other futile land reform programs by assigning small plots of degraded common lands to landless families. These infertile allotments, from which the poor had long gathered fodder and fuel, remained vacant until 1981, when the newly founded Group Farm Forestry Program began distributing free tree seedlings. Many villagers enrolled and covered their land with the hardy trees. After the first harvests proved highly profitable, interest in the program

soared. Villagers in the Nagina area, mostly lower caste and tribal people, used the bulk of their earnings to buy small plots of irrigated agricultural land in the fertile valley bottoms from absentee landlords. Distribution of degraded commonland, followed by tree cultivation, thus became self-help land reform. Vast deforested common areas exist in many regions of the world alongside wretchedly poor people, who, if they had the rights to grow and harvest trees on the land, could do themselves and the environment great benefit.[108]

Returning control over local resources to villagers can have equally dramatic effects. In the devastated Aravali hills of the west Indian state of Rajasthan lies the community of Seed, whose tribal inhabitants have registered their village under the little-used state Gramdan Act. The neglected act, inspired by Gandhi, transfers all common lands in villages which register under the law from the state government to village councils. Seed is the only village in India with an officially sanctioned land use plan written by the villagers themselves. The results of empowering the community are plainly visible: the land, write Indian environmental analysts Anil Agarwal and Sunita Narain, "is lush green and full of grass, like an oasis in the denuded Aravalis." Seed's hundred households have benefited handsomely from the regeneration of their environment; even during the severe drought of 1987, when cattle died by the thousands in neighboring areas, Seed's villagers filled 80 bullock carts with grass.[109]

Poor people's physical weakness from malnutrition and illness, the second part of the poverty trap at the local level, can be alleviated through low-cost, participatory provision of clean drinking water and basic health care. The government in Malawi, one of the poorest nations in Africa, offers materials and training to villages that are willing to lay their own pipes from catchments in the highlands. The more than 1,600 kilometers of pipes and 4,000 village taps installed testify powerfully to the effectiveness of this grassroots strategy, but, in a continent littered with broken down and abandoned water systems, the ultimate proof lies in the fact that clean water keeps flowing year after year to the 1.2 million people whose villages helped build the systems. From the start, the pipes and taps belong to the

villagers, and the villagers, from the women on community water committees to local chieftains and politicians, care for them vigilantly. Installation has cost only $5 per person and maintenance just 11 cents per person per year.[110]



Tanzania's approach to improving the health of children—the majority of the poor—is exemplary. In 1981, Tanzanian health authorities began meeting with dozens of communities to discuss the best strategy for an all-out assault on child mortality. Kicked off in one region with UNICEF assistance in 1983, the program is a model of social mobilization from the international to the village level, involving government, the media, and freshly organized village health committees. At regularly scheduled Village Health Days, parents and newly trained village health workers weigh and vaccinate children, treat common ailments, and discuss health and nutrition. Community health meetings, meanwhile, continually evaluate progress and propose new activities, such as outdoor day care and lunch services for children whose parents are away in the fields. By 1988, in areas where the program had been, the incidence of severe malnutrition had fallen by nearly two-thirds, and the child death rate by one-third. Only insufficient funding may block expansion of the program nationwide.[111]

Population growth, the third aspect of the poverty trap at the local level, is being slowed in pockets around the world by the dedicated work of public and private agencies. Even in Kenya, the country with the world's highest birthrate, progress has recently been measured. The church-supported Chogoria Hospital in the foothills of Mount Kenya discovered a way to make family planning, along with its critical complements, health and nutrition information, available to an entire community on a low budget. Building on Kenya's *harambee* or self-help tradition, Chogoria worked with 42 village committees to construct a human chain between impoverished rural women and the hospital. Hundreds of volunteers, traditional birth attendants, field educators, and nurses—almost all women—collaborate to keep information, support, and contraceptive supplies flowing outward and requests flowing inward.[112]

By the mid-eighties, the area's women were having 2.5 fewer children apiece than was typical nationwide. One in three Third World mothers wants no more children but lacks the modern contraceptives, confidence, or information to control her fertility. Chogoria shows how women can be mobilized to fill that gap in a personalized way: "I work side-by-side with women," one volunteer said, "picking coffee or working in the fields. We discuss everything."[113]

Powerlessness, the last local aspect of the poverty trap, is perhaps the most tenacious. If the world's laws were all evenly enforced, poverty would be a far smaller problem today. For example, despite national laws prohibiting discrimination, untouchable castes in half of India's villages were still barred from common wells at last assessment. Land reforms, welfare systems, employment programs, minimum wages, food-for-work plans, basic infrastructure investments, and health and nutrition assistance are commonly delayed, distorted—sometimes plundered—by landowners, intermediaries, and petty officials. Resources intended to trickle down have a way of evaporating long before they reach the destitute. And, sadly, advocates for the poor run enormous risks in many countries. In places such as Brazil, Guatemala, and the Philippines those who stand with the dispossessed all too often place their lives in jeopardy. Yet courageous organizations persevere nonetheless.[114]

The Calcutta-based Socio-Legal Aid, Research and Training Center organizes village women across Northeastern India into legal cells that monitor and confront abuses against the unfortunate. Arming the grassroots groups with information on law and rights, SLARTC backs them up with a network of 200 volunteer lawyers. SLARTC works most aggressively to uncover and redress violence against women, long tolerated in India—as in most societies.[115]

A decade ago, the Bangladesh Rural Advancement Committee, an independent development organization, discovered the force of information to unite poor villagers in a remote region of their country where corruption was rampant. When BRAC undertook an emergency famine aid effort in the region in the seventies, it quickly

discovered that government relief should have been more than sufficient for the region. As BRAC reports, "Rather than reaching the people for whom they were intended, these resources were being controlled and enjoyed by a small number of powerful men who had good connections with local government officials." The rich of the region had formed a "complex net of cooperative connections linking them into a seemingly irresistible network of corruption. Time after time we found the landless people with whom we were working caught up helplessly in the mesh of this invisible network, only partially understanding it, and feeling powerless to deal with it."[116]



BRAC community workers shifted their efforts from supplying aid to documenting and combating the "net." Interviewing landless people in ten villages, BRAC took records of land grabs, unfair loans, embezzlements, and bribes. None of these isolated events were news to the poor, but as records accumulated, poor people began to take intense interest. As the net's pervasiveness was revealed, the landless began to unite in grassroots organizations to reclaim land wrongfully taken from them and get their due from government offices.[117]

The antipoverty efforts described above give a sense of the force unleashed when development starts with the poorest. In the final analysis, however, ending poverty requires more than a local, piecemeal approach; it requires a government that explicitly directs policy toward aiding the least fortunate. Around the world, in countries of all ideological hues, poverty has retreated dramatically only when ambitious programs have been in place to promote equity and provide the poor with greater opportunities.

Sadly, few countries have undertaken these types of initiatives this decade, focusing instead on reforms of trade, fiscal, and monetary matters as prescribed in structural adjustment packages from the World Bank and International Monetary Fund. The focus on national macro-economic imbalances may be a short-term necessity, but structural adjustment could be done in such a way that it benefits the poor.

Currently, adjustment is based on a free trade, free market ideal that allegedly stands behind the economic success of the so-called Newly Industrialized Countries, notably South Korea. South Korea has raised average income dramatically since the early sixties, mostly by exporting manufactured goods to industrial countries. The new income has been distributed relatively equitably, and poverty has declined sharply. Dozens of developing countries, pressured by Bank and Fund negotiators, have been trying to emulate the "Korean Miracle" and export their way to riches.

Yet what South Korea actually did to reach its current position bears little resemblance to the myth circulated by the two development institutions. Michelle Gittelman writes in the *Journal of International Affairs*, "Nearly every principle of the generic World Bank/IMF policy package for debt-ridden countries . . . was violated by the South Koreans." The Korean government controlled two-thirds of investment capital in the nation—a level almost without par outside of socialist countries. "The South Korean importer," she continues, "who, in 1980, had to submit 256 documents in order to engage in trade would probably laugh at the notion that South Korean policy was close to a free-trade environment." Because of its strategic importance in the Cold War, furthermore, South Korea benefited from preferential access to U.S. markets and massive influxes of direct American aid.[118]

More important, few of the elements of the Korean miracle can be replicated in the global economy of the nineties. Markets in the industrial world are increasingly walled off by protectionist barriers, and the volume of world trade is unlikely to grow quickly, as it did when South Korea began its export drive. For the world's poor, what is most important in South Korea's development—the foundations of equitable growth—came before the export boom. In the late forties, Korea launched one of the most radical and egalitarian land reforms in history, transforming an agriculture of feudal estates into one of small farms in a matter of years. Heavy investment in education, meanwhile, led to nearly universal literacy by the early sixties.[119]

Ironically, the experience of one of South Korea's arch-rivals, China, where poverty has also been reduced dramatically, teaches many of the same lessons. The Chinese economy has ballooned since the mid-seventies, when reforms expanded the role of markets, yet that was preceded by a series of land reforms that first destroyed the power of rural elites and then gave peasants long-term rights to individual plots. As in Korea, primary education and access to basic health care, including family planning, were also already nearly universal.

In both China and Korea, access to these basic impediments to poverty—land, information, and health care—created the foundations of a strong domestic market. Redistribution of wealth broadened the pool of consumers with money to spend, transforming unmet human needs into what economists call "effective demand," and initiating a self-reinforcing process of economic growth. Higher incomes in rural areas stimulated rural and urban industries that absorbed underemployed laborers, whose greater earnings flowed back into the process of growth.

While South Korea and China laid the groundwork of equitable development under all-controlling centralized governments, the state of Kerala, in India, provides a model of incremental but comprehensive poverty alleviation under democratic and decentralized rule. This southern Indian state, with a population as large as Canada in an area the size of Switzerland, has been putting the poor first for decades. Peasants and laborers there are exceptionally well-organized and vocal, thanks to a history of social activism among the educated classes, and have been able to elect governments committed to helping them.[120]

Kerala's villages have access to basic health, education, and transportation services at a level unknown anywhere else in India: a recent survey of access to basic services in half a million villages ranked Kerala first among Indian states in 15 of 20 categories. Immunization campaigns cover most of the population. Schools and clinics are spread throughout the state, along with "fair price shops" that sell basic goods to the poor at low cost. Safe drinking water sup-

plies and family planning services are available to a large and growing share of the population. And a comprehensive land reform program begun in 1969 gave 1.5 million tenants and laborers rights to the land they tilled or to their homes and gardens.[121]

The state's antipoverty focus shows up clearly in statistical profiles. Despite per capita income less than two-thirds of the Indian average, Kerala's adult literacy rate is almost twice the national mark, its people typically live 11 years longer, its birth rate is one-third lower, and inequalities between sexes—and castes—are less pronounced than in any other state. Kerala's infant death rate of 27 per 1,000 is one-third of the Indian average; indeed, it is lower than that of Washington, D.C., despite the fact that the U.S. capital's average income is 30 times as high.[122]

Kerala's health care record is indicative of the way grassroots organizations can make government accountable to the poor. Although some other states have nearly as many clinics and doctors as Kerala, nowhere is health care as efficiently provided. While in many parts of the world, public clinics are underfunded, poorly supplied, and often without professional staff, "in Kerala," as one analyst writes, "if a PHC [primary health clinic] was unmanned for a few days, there would be a massive demonstration at the nearest collectorate [regional government office]."[123]

The ingredients of Kerala's success are common to all effective efforts to dismantle the poverty trap worldwide: Literacy, especially for women, gives access to information, and leads to higher incomes, improved health, and smaller families. Secure land rights allow the poor to increase income and economic security. Local control over common resources helps break up the cycle of economic-ecological degradation. Credit lets the poor get productive assets such as livestock and tools. Clean drinking water and community-based primary health care protect adults from debilitating diseases, which lower their earnings, and save children's lives, allowing parents to have smaller families. Family planning gives poor women means to effectively control their fertility, space births at a healthy interval, and

**"Grassroots organizations enable the poor to direct the development process and to accelerate progress by working together."**

improve their own health. Grassroots organizations enable the poor to direct the development process and to accelerate progress by working together.



If World Bank and International Monetary Fund structural adjustment packages incorporated some of these measures they would often help both the unfortunate and the economy overall, by enabling poor people to generate more income. Alternately, structural adjustment might simply focus on removing economic distortions and inefficiencies that benefit primarily the rich. Yet because structural adjustment plans are often quickly drawn, they tend to remove obvious subsidies to the poor, such as those on food, without touching invisible subsidies to the rich, such as protection of industrial sectors.[124]

Implementing poverty alleviation programs at the local and national levels will come to little without complementary reforms at the international level, where the debt burden remains undiminished and the threat of climate change hangs like Damocles' sword.

Reversing the downward spiral means negotiating deep cuts in the debt burden in exchange for policy reforms to help the poor out of the cycle of environmental impoverishment. Moves to cancel some African nations' debts to Western governments are a good start, as is U.S. Treasury Secretary Nicholas Brady's call for reduction of Latin nations' debt to private banks. But much more comprehensive action will be required. Since early in the debt crisis, banks have formed an almost united front, but debtor nations have never joined together to coordinate their bargaining positions. Reaching a final solution will require roundtable international negotiations between debtors and creditors, an international debt reduction agreement, and an impartial institutional mechanism for adjudicating disputes.[125]

For the world's policymakers, the details of the debt reduction methods now in order matter less than the realization that debt on the current scale is no longer tolerable. After seven years of debt

rollovers and band aid palliatives, and after seven years of growing misery in the South, the time for hesitation is past. As UNICEF writes, "It is essential to strip away the niceties of economic parlance and say that what has happened is simply an outrage against a large section of humanity. . . . Allowing world economic problems to be taken out on the growing minds and bodies of young children is the antithesis of all civilized behavior. Nothing can justify it. And it shames and diminishes us all."[126]



Beyond debt relief, unlocking the global poverty trap will require lessening industrial country trade restrictions against imports from poor nations. U.S. import limits on sugar, for example, have meant that for much of the past decade, Americans have paid several times the world market price to sweeten their coffee with beet sugar from Minnesota while cane cutters nearly starve for lack of work in Negros, the poorest of the Philippine islands. Negros's vast sugar fields are grossly underutilized and wages have fallen to about 75 cents per day.[127]

Dismantling the poverty trap will also mean helping developing nations to diversify their economies, moving away from dependence on volatile commodity markets. And it will mean working toward international cooperation to track capital flight; otherwise the wealthy will continue to avoid paying their share of taxes to finance economic recovery.

International assistance has a vital direct role to play in alleviating poverty, yet most development assistance agencies continue to fund projects that are largely irrelevant to the poor. One exception, a multilateral organization that has consistently put the poor and their environment first, is the Rome-based International Fund for Agricultural Development. "No people," IFAD's 1988 annual report declares, "are too poor, too isolated, or too marginalized to remain beyond the reach of effective projects." They have worked with

**"Over the long run, fossil fuel use in industrial countries may be the most important determinant of the global poverty rate."**

indigenous tribes in the Andes, nomads in the Sahara, and dispossessed untouchables in India, aggressively promoting local control over resources, environmental sustainability, and the rights of women.[128]



Finally, poverty alleviation must look to the threat of global warming, which, if allowed to run its course, could overwhelm all other progress against destitution. The specter is nightmarish: agricultural systems could be thrown out of balance resulting in massive famines; water cycles could be disrupted, causing frequent floods and droughts; poor people's limited natural resources could be decimated as forests, rangeland, and swamps are traumatized by rapidly changing climate patterns and rising seas.

Over the long run, fossil fuel use in industrial countries may be the most important determinant of the global poverty rate. Every year that passes without an international accord to reduce greenhouse gas emissions in effect dooms millions more to live as paupers. Conversely, insofar as deforestation contributes to global warming, and poverty to deforestation, poverty alleviation has a place in any comprehensive climate protection plan.

Today, poverty is no longer only intolerable from a moral point of view. Failure to end its scourge will not only stain the history of our age, it will predestine the destruction of much of the shared biosphere. For, although environmental damage penalizes the poor more consistently and severely than it does the rich, the downward spiral eventually becomes a circle embracing all of humanity, rich and poor alike.

When the poor, in desperation, erode hillsides, degrade rangelands, or burn forests, sending species into extinction, they are not the only ones who suffer. Soil eroding on remote mountain slopes clogs

hydroelectric and irrigation works downstream. Sheets of rain washing off of denuded watersheds flood exclusive neighborhoods as surely as slums. Potentially valuable medicines lost with the extinction of rain forest species are as unavailable to the rich in their private hospitals as they are to the poor in their rural clinics. And the carbon dioxide released as landless migrants burn plots in the Amazon or the Congo warms the globe as surely as do the fumes from automobiles and smokestacks in Los Angeles or Milan. The fate of the fortunate is immutably bonded to the fate of the dispossessed through the land, water, and air: in an ecologically endangered world, poverty is a luxury we can no longer afford.

## Notes



1. Quoted in Ben Whitaker, *A Bridge of People: A Personal View of Oxfam's First Forty Years* (London: Heinemann, 1984).

2. Economy, energy, and industry from Jim MacNeill, "Strategies for Sustainable Economic Development," *Scientific American*, September 1989; travel from Richard Critchfield, "Science and the Villager: The Last Sleeper Wakes," *Foreign Affairs*, Fall 1982.

3. Billionaires from Alan Farnham, "The Billionaires: Do They Pay Their Way?" *Fortune*, September 11, 1989; millionaires estimated from John Steele Gordon, "Why It Costs So Much to Be Rich," *Washington Post*, May 21, 1989; diet expenditures from Calorie Control Council, Atlanta, Ga., private communication, October 4, 1989; undernutrition estimated from World Bank, *Poverty and Hunger: Issues and Options for Food Security in Developing Countries* (Washington, D.C.: 1986), and data discussed later in text; drinking water and sanitation based on United Nations Children's Fund (UNICEF), *State of the World's Children 1989* (New York: Oxford University Press, 1989), and World Bank, *Social Indicators of Development 1988* (Baltimore, Md.: Johns Hopkins University Press, 1988).

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7. Rigoberta Menchú, *I, Rigoberta Menchú: An Indian Woman in Guatemala* (London: Verso, 1983).

8. Quoted in Betsy Hartmann and James K. Boyce, *A Quiet Violence: View from a Bangladesh Village* (San Francisco: Institute for Food and Development Policy, 1983).

9. Early eighties estimates from U.N. Food and Agriculture Organization (FAO), *Dynamics of Rural Poverty* (Rome: 1986); World Bank, *World Development Report 1980* (Washington, D.C.: 1980), and *World Development Report 1982* (Washington, D.C.: 1982).

10. Robert Summers and Alan Heston, "A New Set of International Comparisons of Real Product and Price Level Estimates for 130 Countries, 1950–1985," *Review of Income and Wealth*, March 1988. A database on computer diskettes that accompanied the Summers and Heston article was used to develop many of the tables and figures in the text. Figures for China from Alan Heston, University of Pennsylvania, Philadelphia, Penn., private communication, September 22, 1989. In citations hereafter, "Summers and Heston" refers to the article, database, and private communication.

11. The groupings in Figure 1 are based on the countries' 1985 per capita income. Rich nations are those above $6,000, middle income countries are between $2,500 and $6,000, poor countries are between $1,000 and $2,500, and poorest are below $1,000. Source for Figure 1: Summers and Heston; data for 1986 to 1988 are Worldwatch estimates.

12. Top stratum living in United States from Summers and Heston. Figure 2 based on Summers and Heston and Population Reference Bureau, *1989 World Population Data Sheet* (Washington, D.C.: 1989).

13. Income distribution figures tend to understate disparities because they are calculated for households despite differences in household size (poor households are usually larger). Share of population below average income estimated from data in sources for Table 1. Table 1 sources: World Bank, *World Development Report 1988* (Washington, D.C.: 1988); World Resources Institute (WRI), *World Resources 1988–89* (New York: Basic Books, 1988); Agha M. Ghouse, "Urban Poverty and Unemployment in Pakistan," *Pakistan &*

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**14.** Sources for Table 2: Summers and Heston; sources from Table 1 above; Frederic L. Pryor, *Income Distribution and Economic Development in Malawi*, Discussion Paper 36 (Washington, D.C.: World Bank, 1988); Frederic L. Pryor, *Income Distribution and Economic Development in Madagascar*, Discussion Paper 37 (Washington, D.C.: World Bank, 1988).

**15.** Indian wealth distribution from Michael Lipton, *The Poor and the Poorest: Some Interim Findings*, Discussion Paper 25 (Washington, D.C.: World Bank, 1988).

**16.** National records estimated from Summers and Heston; World Bank, *World Development Report 1988*; World Bank, *World Development Report 1989* (Washington, D.C.: 1989).

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**18.** Infant mortality from UNICEF, *State of the World's Children 1989*; Per Pinstrup-Andersen, "Food Security and Structural Adjustment," in Colleen Roberts, ed., *Trade, Aid, and Policy Reform: Proceedings from the Eighth Agricultural Sector Symposium* (Washington, D.C.: World Bank, 1988); Per Pinstrup-Andersen, "Macro-economic Adjustment Policies and Human Nutrition: Available Evidence and Research Needs," *Food and Nutrition Bulletin* (United Nations University), March 1987; World Bank, *Poverty in Latin America: The Impact of Depression* (Washington, D.C.: 1986).

19. UNICEF, *State of the World's Children 1989*.

20. Figure 3 source: Summers and Heston; data for 1986 to 1988 are Worldwatch estimates.

21. Summers and Heston; Dharam Ghai and Cynthia Hewitt de Alcántara, "The Crisis of the 1980's in Africa, Latin America and the Caribbean: Economic Impact, Social Change and Political Implications," United Nations Research Institute for Social Development, Geneva, July 1989; World Bank, *World Bank's Support for the Alleviation of Poverty* (Washington, D.C.: 1988).

22. Latin America from Summers and Heston; World Bank, *Poverty in Latin America*; Alvaro García et al., "Paying Off the Social Debt in Latin America," *International Labour Review*, Vol. 128, No. 4, 1989; Inter-American Development Bank (IDB), *Economic and Social Progress in Latin America 1986* (Washington, D.C.: 1986); Iglesias quoted in UNICEF, *State of the World's Children 1989*; Peru from Encuesta Nacional de Nutrición y Salud, cited in Sandra L. Huffman et al., "Community Designed Interventions To Prevent Malnutrition in Peru: Community Kitchens and Neighborhood Childcare," draft, Center to Prevent Childhood Malnutrition, Bethesda, Md., May 20, 1988; El Salvador from Grusen, "Salvador's Poverty Called Worst in Century."

23. Asia from Summers and Heston; World Bank, *World Development Report 1989*; World Bank, *Support for the Alleviation of Poverty*.

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**25.** Vali Jamal and John Weeks, "The Vanishing Rural-Urban Gap in Sub-Saharan Africa," *International Labour Review*, Vol. 127, No. 3, 1988; Ghai and de Alcántara, "Crisis of the 1980s"; agricultural wages from FAO, *Dynamics of Rural Poverty*; southern Indian agricultural wages from R.M. Sundrum, *Growth and Income Distribution in India* (Newbury Park, Calif.: Sage Publications, 1987); agricultural wages in Mexico and Brazil from World Bank, *Poverty in Latin America*; J. Durston, "Rural Social Policy in a Strategy of Sustained Development," *CEPAL Review*, December 1988; Zaire and price trends from Pinstrup-Andersen, "Food Security and Structural Adjustment."

**26.** Pryor, *Income Distribution and Economic Development in Madagascar*; Pryor, *Income Distribution and Economic Development in Malawi*; Nigeria from Jamal and Weeks, "The Vanishing Rural-Urban Gap in Sub-Saharan Africa"; Paul Collier, "Oil Shocks and Food Security in Nigeria," *International Labour Review*, Vol. 127, No. 6, 1988; Dharam Ghai and Samir Radwan, eds., *Agrarian Policy and Rural Poverty in Africa* (Geneva: International Labor Office, 1983); Bangladesh and Sri Lanka income distribution from Fields, "Poverty, Inequality, and Economic Growth"; Pakistan from "Urban Poverty and Unemployment in Pakistan"; Latin American income distribution from World Bank, *Poverty in Latin America*; Gary Fields, "Employment and Economic Growth in Costa Rica," *World Development*, Vol. 16, No. 12, 1988; Adriana Marshall, "Income Distribution, the Domestic Market and Growth in Argentina," *Labour and Society*, January 1988; Ghai and de Alcántara, "Crisis of the 1980s"; rural Brazil from FAO, *Dynamics of Rural Poverty*; Brazil income losses from Pinstrup-Andersen, "Food Security and Structural Adjustment."

**27.** Worldwatch examined available estimates of absolute poverty and income distribution on a country-by-country basis for both rural and urban areas, compared them with data on economic and social indicators, and compared them against estimates for similar countries. Worldwatch then made its own estimate for each country, trying to reconcile available data and apply a single standard of poverty. Poverty in industrial countries is not included in the global figures, because very little industrial country poverty involves conditions of deprivation severe enough to classify as absolute poverty. Industrial countries together contain fewer than 10 million individuals who live in absolute poverty—a quantity too small to alter the global estimate substantially.

**28.** Based on World Bank, *World Development Report 1980* and *World Development Report 1982*, which estimate absolute poverty at "nearly 1 billion" in 1980. In 1980, one billion people constituted 22.3 percent of the world population. In fact, figures in the above World Development Reports add to about 970 million, if allowance is made for countries the World Bank did not count, such as Vietnam, Laos, North Korea, and Cambodia, or 21.7 percent of the 1980 global population. The most recent World Bank estimate of 950 million in poverty would mean a lower poverty rate in 1989 than in 1980, but the estimate appears to have little basis. The Bank intends to produce a more rigorous poverty estimate in 1990.

**29.** Urban-rural division of poor estimated as above for overall poverty rates; villages from Richard Critchfield, *Villages* (Garden City, N.Y.: Anchor Press/Doubleday, 1983).

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